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An Address

ON

INTERNATIONAL STANDARDS OF PUBLIC HEALTH AND WELFARE WORK.

Delivered before the British National Association for the Prevention of Consumption, London, Oct. 16th, 1919,

BY WILLIAM CHARLES WHITE,

MEDICAL DIRECTOR OF THE TUBERCULOSIS LEAGUE OF PITTSBURGH.

MR. PRESIDENT AND GENTLEMEN—Great Britain and America are both interested in establishing an international standard of public health and welfare work, and though their reasons for this interest differ, both must fully coöperate if it is to be established throughout the world. The British Empire is composed of greatly varying national groups. Its colonies are widely separated by land and sea. Its government has learned the great lesson of releasing power and establishing local autonomy with central supervision.

The United States, on the other hand, starting with individual states which possessed complete local autonomy, has adopted in the last half century a policy of highly centralised Federal power which exerts an ever-growing control over the enormous territory and wealth enclosed within its compact borders. This is the more striking, in that often in the smallest governmental unit, the industrial municipality, as many as 50 different nationalities are represented in segregated national groups. In other words, the problem for the British Empire and the United States is the same in that each, as a matter of government, must deal with many different races and nationalities, but in the former federation the units are scattered over the earth, separated by ocean and alien land, while in the latter, they are divided only by the imaginary line of state or county.

A comparison of these two great federations does not come within the scope of this paper, save as it throws light upon the solution of the enormous problem of human welfare, which forms the greatest business of any government.

THE BASIS FOR LAYING DOWN STANDARDS.

Leaving this phase of the question for the moment, let us attempt to fix a basis for international standards for public health and welfare work. We must first determine our essentials, their relative value, and, on the basis of the budget available, where the greatest returns from expenditure will be gained; secondly, we must establish our building stone, our working unit; finally, we must correlate these units into a composite whole.

Tuberculosis, as a problem, has taken a prominent place in the formulation of our programme of health. If we had a specific cure for this malady, much that is now necessary in the campaign would pass into history. It is because we have no specific cure and must rely upon organisation and coördinated effort that it holds its important position at the present time.

In the past each country has been guilty of putting an exaggerated value upon details which, from time to time, have been suggested and advertised as a means of controlling the malady. You all know them—sanatoria, hospitals for advanced cases, dispensaries, mountain colonies, farm colonies, and villages.

The great weakness in each one of these if over-emphasised is that it represents but one detail of a big scheme, and often is contrary to higher laws influencing the human family. For example, infection with the tubercle bacillus may at no period be taken as a just ground for a type of segregation which does not take account of social, educational, and financial distinctions. Infection with the tubercle bacillus will not make the lion and the lamb lie down together. If it could do so many of the problems of the world would be solved. If it could do so we need now only infect Italian and Jugo-Slav, infect President Wilson and his senate, infect the Bolsheviks, the Irish and the labour unions, in order to settle many difficulties between groups of the human family.

Every tuberculosis sanatorium provides for but one social group. If an attempt is made to inject another, the troubles within the institution multiply steadily. Such limitations restrict the use of most of the equipment which we at present have at our disposal to handle the tuberculosis problem. In proposing to you certain essentials of international standards, my object is to render effective the work of all our organisations against tuberculosis—in other words, to fit the equipment to the task to be done.

THE EQUIPMENT MUST BE FITTED TO THE TASK.

The equipment must be modified to meet the requirements of each locality. This obviously suggests that, in order to make a proper adjustment, it is first necessary to take careful stock of each region to be handled and to find out exactly the specific task to be performed. In mapping out a programme, I should put in the place of first importance this careful stock-taking, examination, and statistical record of the kingdom, district by district. On its completion I should determine, on the basis of the relative values of equipment, just what the budget for each district could stand in successive periods, and in what direction its funds could best be expended.

Let us look for the moment at the question of these relative values. Approximately 85 per cent. of our tuberculosis population will always be cared for in the home. The remaining 15 per cent. may for the moment be disregarded, while domiciliary care thus becomes the dominant factor in determining the relative values of equipment, 85 per cent. of which must be devoted to this large proportion of our population. What agency have we to meet this heavy demand?

Rating our entire equipment at 100 per cent., values varying from 25 per cent. to 60 per cent. have been placed upon the public health nurse or public health visitor. Personally I estimate her value at 60 per cent. or higher. The field of activity which she has finally appropriated is one which no other agent is able to cover, for it is educational in character. She educates the family to carry out the advice of physician, economist, and sanitary officer.

This leads us directly to the question of the working unit for public health work. For this I should choose a public health nurse and that amount of territory and number of people whom she can adequately handle.

With such units established for each group of population, the rest of the programme would require, in diminishing ratio, an equipment of dispensaries, laboratories, hospitals for advanced cases, and sanatoriums, with physicians and consultant nurses to correlate them properly and to bring them into harmony with each other in one composite whole.

EFFORT MUST BE COÖRDINATED.

Our second essential, then, which may be described as coördinated effort, depends upon the great principle in tuberculosis work which Sir Robert Philip has given to the world and which stands next in relative value to the implements which we have already described.

For example, in the fight against tuberculosis we might roughly estimate that for every 250,000 of population we should need, in our poorer districts, 20 visiting nurses, one dispensary with four or more sub-stations, hospital beds equal in number to the mortality rate, five physicians, five consultant nurses, and a sanitary administrative office to handle hospital admissions, open-air schools, statistics, an educational campaign, &c. It would also be the function of one section of this office to establish and maintain constant coöperation with those organisations dealing with related problems, such as child and maternity welfare, medical examination of school children, infectious and venereal diseases. Through its influence, for instance, a housing programme would be made to include suitable provision for that portion of the population suffering from tuberculosis which must be cared for at home. At least 5 per cent. of any housing programme should be so arranged as to isolate and care for tuberculous patients in a household.

Such factors of limited and very special use as farm and mountain colonies would be left to the various private groups, which would determine their position in the general programme. These institutions would be placed in such relation to the whole problem as to care for suitable cases for a given district. Naturally their scope is limited, but the extent of the region each would serve would be determined by the number of available cases.

THE RELATION OF CENTRAL TO LOCAL GOVERNMENT.

We come next to the problem of the relation of these units to central government. If I were to suggest to you in Great Britain that there was any relation between the loss of the American Colonies and your low death-rate from tuberculosis, you would probably laugh me out of court. Yet as I study the various speeches outlining your colonial policy which have been made in your Parliament since that loss, I see a different trend given to your statesmanship from that period. As I read also the story of Baron Stein's appreciation of your municipal and county autonomy which he carried back to Germany as the basis of its policy in forming its new empire after the Peace of Tilsit, I think I can see a definite relation between the thought generated by the loss of American territory and all that has since happened to the British Empire. It may be summed up thus: That your statesmen first learned to release power and have been the fathers in the world of local autonomy. This great principle, I believe, must be grasped by all those interested in every phase of the government of the world. Similarly, the release of power by the central authorities to local authorities, thereby enabling them to adjust equipment in health and welfare and educational matters to the task to be done in their respective localities, is the secret of control of most of our health and welfare problems.

The function, then, of central authority is to study, correlate, suggest, stimulate, and subsidise, and so secure equable and uniform establishment of standards throughout its kingdom.

It will not do, however, to stop at your kingdom or our republic. To set up uniform standards throughout the world is the great privilege and duty of Great Britain, America, France, and Italy. These standards have a special significance for you in your colonies and also for us in America, because we have opened our doors to all the nations under heaven. Had we taken steps to secure uniform methods of health and welfare education and coöperation 50 years ago, we should not now be dealing with the serious problem of foreign groups segregated within the borders of nearly all of our industrial communities.

SUMMARY.

My chief suggestions, then, first, are a careful analysis of each region; second, the establishment of a building unit of public health nurse and her territory; third, the correlation of these on the basis of the Edinburgh principle, with the added superstructure of other equipment as budget and necessity permit, but always on the basis of adaptation to the region to be handled. To push these standards throughout the world will require constant modifications based upon a knowledge of language and of the origin and former condition of the people to be cared for.

As a step toward obtaining such knowledge, we have been able to begin in a small way a number of international scholarships in Public Health Nursing. In this we hope the British Empire will join us, so that we may have travelling back and forth between the peoples of the world who differ in language and custom those agents of public health and welfare who mean most in the education of a populace—by teaching them how to carry out the suggestions for their betterment made by physician or other officer.

I have purposely not gone into the other fields associated with tuberculosis, because I believe with a proper building unit once established the correlation and addition of the superstructure is comparatively easy. It should not be difficult, even for an international plan, which on its completion will make it as safe to live in one part of the world as in another, for then in each region the equipment will fit the task, and the task will be outlined according to the first-hand facts and data furnished by each public health nurse for her special district.

THE first meeting of the Lancashire and Westmorland Tuberculosis Society will be held on Thursday next, Oct. 30th, at 3 P.M., in the Houldsworth Hall, Deansgate, Manchester, when Dr. G. Lissant Cox, central tuberculosis officer to the Lancashire County Council, will deliver the presidential address. The attendance of medical men interested in tuberculosis is invited.

An Address
[ABRIDGED]
ON
IDEALS IN RADIOLOGY AND ELECTROLOGY.

Presidential Address delivered before the Section of Electro-Therapeutics of the Royal Society of Medicine on Oct. 17th, 1919,

BY ALFRED E. BARCLAY, M.D. CAMB.,
HON. MEDICAL OFFICER, RADIOLOGY AND ELECTRICAL DEPARTMENTS, ROYAL INFIRMARY, MANCHESTER.

LADIES AND GENTLEMEN,—It is a time-honoured custom that the incoming President should address you on some subject of his choice, and it is with much diffidence that I undertake the task, for I feel very deeply the honour you have done me and the grave responsibilities that are implied.

The war has brought into prominence the wide fields that are open for the uses of electricity and other physical forces in medicine, particularly of X rays, with the result that many men are prospecting with a view to taking up the work represented by this section. For instance, in my own city five men are now established in X ray work where formerly there were but two, and I understand that this is more or less the same in all the large towns. I thought, therefore, that it might be of value if I addressed myself particularly to those men who, knowing only the military side of our arts, should know what the future holds if they are to become successful practitioners.

THE NECESSITY FOR TECHNICAL KNOWLEDGE.

Whatever view we take of the future possibilities of our branch the present is with us, and one need hardly point out how vast are our opportunities—opening out in so many directions that no one worker can be a master of them all; what a change from 20 years ago, when in a few weeks a man could make himself as competent on the medical side of the subject as was possible. To-day it is a different story, and to take his place a man must be prepared to master a diversity of subjects such as are necessary in no other branch. Of course, it is essential that a man taking up this line of work should know his physics and electricity and all the technical work in radiography, radiotherapy, electro-therapy, &c., which are carried out for him by lay assistants. He will have to be responsible for the work of his department, and no man is fit to do this who does not know the general principles and the detail of every job that is carried out for him by his assistants. This argues that he should also know the construction of his apparatus and the theory on which it is constructed, for it is for him to say what is, and what is not, possible with the apparatus at his disposal. In short, he must be the master and must be able to talk to his radiographer, photographer, and any other assistant, and correct faults in their technique. And these things are outside and introductory to the science and art of medicine, of diagnosis and healing by physical means. The man who takes up this branch must be prepared to master these subjects if he is to approach his specialty from a scientific point of view. The man who by turning on a switch produces such and such a result is as empiric a physician as those of a hundred years ago who loaded a bottle with many different drugs in the hope that some one of the constituents would be of value. He did not know how or why he obtained his result, but at that time the knowledge was not available. To-day the man who fails to know the A B C of the science in which he deals is nothing less than a quack, and presumably a lazy one, for the knowledge is ready to hand to any man who cares to learn. I admit that, at the moment, the knowledge is scattered and has to be sought out, but the establishment of the Diploma at Cambridge, with its very sound syllabus, ensures courses of study where all may obtain the requisite training.

SPECIALISED TEACHING.

The importance of specialised teaching for our branch is patent, especially to those of us who had to find our own way into it, not knowing what we were in for, or the equipment of medical knowledge necessary;

before apparatus was standardised and each new "stunt" had to be tested. Nowadays, by comparison, the work is stereotyped, and we know fairly well what apparatus is necessary and the lines on which a department will be developed. No department that I know has, however, reached the place it should do, for in my view the X ray and electrical department is bound to become one of the most important branches in any hospital. As an illustration of the growth I will instance the fact that in the hospital with which I am connected, 10 years ago one in a hundred of all registered in- and out-patients found their way to my department for diagnosis or treatment. To-day more than one in eight passes through my hands, in spite of the fact that we do no skin work and that there is a special institute in the Hospital for Radium which deals with about the same number of cases as the London Radium Institute. I have no doubt that departments in other hospitals show much the same growth, and in every one of them it is spontaneous and necessary to the efficiency of the hospital. To take over the management of such a department is a grave responsibility, and no man can be too well equipped for his post. There is no appointment in the hospital which calls for better or more diverse training, for the head of this department must also be able to consult with the specialists in every other branch, and to do this he must be thoroughly conversant with their work and in what ways his branch can assist them.

THE CAMBRIDGE DIPLOMA.

In your hands you have the proposed syllabus for the Cambridge diploma. You will note that it is comprehensive, and there are few of us who would care to tackle an examination based on this syllabus without a good six months' work. Many of us feel the great disadvantage under which we labour in not having had such a course of training before we started on our work. To have had our elementary knowledge of electricity expanded in the directions indicated by the syllabus would often have stood us in good stead, and to have thoroughly understood the physics of our subjects would have added greatly to our efficiency and, incidentally, to our interest in the work.

Systematic courses of lectures and demonstrations in radiology, radiotherapy, electrotherapy, and the other medical aspects of our branch should give the novice a groundwork that is the envy of those of us who had to grope our way. Some of you may be surprised, shocked, and perhaps grieved to notice that in addition to all the various courses that are special to our branch, there are also courses on anatomy, physiology, and pathology; subjects that some of us thought we had buried with our botany and zoology when we took our first hospital appointments and became "practical" physicians. Those responsible for this diploma had one thought in mind—i.e., that those who carried this hallmark should be competent to be *consultants* in their art as far as it is possible to make them so by teaching and examination. There is, however, one factor that no examination and no board of examiners can ensure—the individuality of the man who presents himself for examination.

It has been very truly said that the consultant is not the man who wishes to consult but the man whom others would wish to consult; the ideal man for this work, therefore, is he who combines the keenness to master the whole of our arts with the personality which induces confidence in the opinions he expresses. One cannot labour the point too much that it is the opinion and theory which will count in the long run, no matter how showy and expensive the apparatus and how perfect the X ray plates. On the other hand, nobody will trust that consultant who is content to turn out second-rate technical work, whose apparatus is slipshod, and whose methods indicate carelessness and lack of thought.

INGENIOUS APPARATUS.

In no other branch is there room for such thought and ingenuity in the tools with which the work is done, and this factor has attracted some of our ablest workers. Nearly all our apparatus has been designed by, or built to the instructions of, medical men, and there are few among our number who have not done something in this line and who have not themselves actually made a certain amount. It is a delight to see the apparatus in some hospitals and private rooms—pure makeshift devices, made for a few coppers often, out of some pieces of scrap, and yet performing the work for which it was designed with perfect efficiency. The men who do such things must be a great worry to the instrument makers, for they save themselves and their hospitals hundreds of pounds.

THE WORK OF THE RADIOLOGIST.

What is the work of a radiologist in his hospital department, a department in which three-quarters of the work can, and should, be done by lay assistants? As I have already said, his post is essentially that of a consultant, the man who directs, and knows every detail of the work that is done for him. Like the head of a business, his work consists in the direction of others, and he must not omit to give credit where credit is due—the radiographer who works under an unappreciative radiologist soon ceases to take an interest in his work. It should be the aim of the radiologist, therefore, to make the radiographer feel the responsibility of his position. In one department that I know well, when visitors are present, the radiographer is invariably given the credit of all good plates and, of course, visitors never see bad plates in that department.

The radiologist's desk should be cleared of all routine work first thing and, so far as is possible, he should devolve on to others those things which it is not essential that he himself should do, in order that he may be free at any time to consult with his colleagues, either in the department, at the bedside, or in the theatre. In spite of organisation, however, it is not a "cushy" job, for he has many duties to perform; he sees and reports on all the X ray plates, sees all the treatment cases periodically, and each day he should inspect the work that is being done by his assistants. Personally, I think it an essential and most important part of his work that he should himself do all the screen examinations of intestinal and chest cases, and, so far as is possible, he should set himself free to be in the operating theatre and the post-mortem room to follow up all doubtful cases and see his failures.

Coöperation between the Radiologist and his Medical Colleagues.

The closest coöperation should exist between the radiologist and his medical and surgical colleagues, and his first aim should be that his personal services and those of his department are freely at the disposal of all his colleagues. His section is quite unlike all other special departments, unless it be that of the pathologist, for it is not self-contained but established as the auxiliary of all other branches of the hospital for the supply of the necessary information on which the surgeon and physician act. His opinion on an X ray examination should be sought by his colleagues because of its value, but no radiologist should take up the position that his opinion, and his only, is of any value; a surgeon or physician has a perfect right to draw his own deductions from work done in the X ray department, and it is "up to" the radiologist to supply them with all the material for this purpose; if the surgeon or physician trusts his own opinion he does so on his own responsibility if it runs contrary to that expressed by the radiologist. In most cases, however, one finds that more and more of the responsibility is thrown back on the radiologist, in some cases to a quite unwarrantable extent, for the radiologist seldom has time to examine a case clinically, and his opinion is usually a lop-sided one, for he does not know the clinical side of the picture. It is only fair that all requisitions for X ray examinations should either be accompanied by a clinical diagnosis or a brief outline of the symptoms and physical signs, and, personally, I have a rule that I will not examine abdominal cases without some indication in this direction; in other words, it is just as essential that the surgeon and physician should coöperate with the radiologist as that the radiologist should coöperate with them. For instance, the knowledge that a tumour has been detected at the clinical examination makes the radiologist take special pains in the palpation of this region. In some cases he so alters his routine opaque meal as to ensure that the bulk of it will be in such a position as to assist him in determining the relations of the tumour. Or in urinary work, if details are not given, my assistant is instructed to ask a set series of questions which will give sufficient data on the clinical side to avoid pitfalls in giving an opinion on the X ray examination.

Consultations.

The work of the radiologist as regards diagnosis should not be crowded into the minimum of time, for it is essential that he should hold himself at the disposal of his colleagues

at *their* times if he is to work in close coöperation—i.e., if he is to keep in close touch with *their* work and act in the consultant capacity. A great deal can be done by reports, but there is hardly a day on which one or more of his colleagues, or of the resident staff, do not wish to discuss cases with him. And this coöperative work would be enormously increased, with mutual advantage, if the X ray department were suitably placed; almost all the departments in this country have just "happened" in any odd cellar or outlying spot that was available, quite irrespective of its proximity to the wards and operating theatres. It usually means a special journey, in an out-of-the-way direction, for a surgeon or physician to visit the X ray department.

The Whole-time Radiologist.

The underlying principle for a successful radiographic department is that it shall be organised and run as an auxiliary to the medical services of the hospital, helping in every possible way to promote efficiency; if the radiologist runs it half-heartedly, or to suit his own convenience, there is constant trouble and friction, especially where the staff of the hospital is young and progressive. There is a very strong case, so far as the efficiency of the hospital is concerned, for the employment of a whole-time radiologist. There is certainly quite enough work for him to do, even if he does none of the technical work himself. The difficulty, however, in existing conditions, is that it would be impossible on financial grounds to get the type of man necessary for such a post. From the point of view of private practice such an arrangement would be a calamity, for the men with the experience would not be available for private work and, as usual, we will probably continue with the compromise that has already become established.

The Abuse of X Rays.

How are X rays to be used in diagnosis? Automatically every case of injury or pain in the back comes down to the X ray department, and in most cases no attempt is made to arrive at an accurate diagnosis. The art of diagnosis by intelligent deduction, not far removed from guesswork perhaps, is no longer used in a very large number of cases. There is more than a tendency to laziness in the use of the clinical method, with the result that the student is not taught to think things out for himself. In a large number of cases X ray examination is quite unnecessary, and a careful clinical investigation would have revealed this, but it is a great deal easier to write a request for an X ray examination than to go into the case clinically. From the teaching point of view this is an abuse of the X ray department that must lead to most inefficient work when the students go out into practice and have not an X ray service ready to hand. From the patient's point of view it is not satisfactory except in the fracture cases, where a great deal of painful examination is obviated. In the indefinite backache cases, for instance, a negative renal examination accompanies the patient on his second visit to the surgical out-patient department, where he probably falls into the hands of an assistant who follows up the case in a desultory manner and with little interest, as it is not a first attendance, with the result that the patient is never systematically examined. The X ray department should not be used in this way; its resources should only be called on when the patient has been examined and a clinical diagnosis arrived at. If it were used in this manner for the supply of confirmatory evidence it would result in an increased accuracy of clinical diagnosis and the students would not scamp their clinical work. The way in which patients are referred to the X ray department at present indicates clearly that either the staffs are too busy to diagnose the cases by clinical means, or that they do not care to risk a diagnosis that may be upset by the X ray findings. Whatever the cause, however, one notices an ever-increasing tendency on the part of the junior staff to use the X ray department as a short cut to a diagnosis, and they will not trouble themselves with clinical methods if they can get what they want from the X ray department.

THE ELECTRO-THERAPEUTIC DEPARTMENT.

Turning now to the therapeutic side of the subject, the department conforms much more closely to that of the other special branches. Cases are referred from surgeons, physicians, and special departments, and become, or should become, patients under the care of the electro-therapeutist. In many hospitals the position of these patients is ill-defined—they do not know whether they are under the electro-therapeutist or the physician by whom they were referred. Personally, I have had to make a hard and-fast rule both in private and in hospital practice, that I will only take responsibility for the patient in so far as he is under me for X ray or electrical treatment—I will not prescribe a placebo, a purgative, a narcotic, or any other drug, nor will I even give instructions as to the ordering of the patient's life if I can evade doing so—i.e., I will not touch the responsibilities of the physician in charge of the case. On the other hand, full responsibility for the work done in my department is accepted and insisted on. I will not take instructions from anyone as to what treatment I give or how I give it. The electro-therapeutist must himself see every case, and he must take the responsibility for the work done under his supervision; it is for him and him only to say whether the case is suitable for the treatment he controls and knows better than anyone else, and it is for him and him only to prescribe that treatment. It is also for him to see that what he has prescribed is carried out.

UNINTELLIGIBLE INSTRUCTIONS.

There are few radiologists who have not, in days gone by, fumed, both in hospital and private practice, at minute directions as to what is to be done with certain cases, instructions such as the radiologist should give to his assistant. Sometimes these instructions are quite intelligent, at others they are the most absurd and dangerous balderdash, obviously written with the intention of impressing the patient, and, as obviously, written by physicians who have picked up a few technical terms and do not know anything about the subject. I grieve to state that far and away the worst examples of this type of fooling I have met with have come from well-known consultants. More often, however, the general practitioner hands on instructions that So-and-so says that the patient is to be treated in such a manner and so often. (In all probability So-and-so never said anything of the kind, but knowing the usual routine practice adopted, has stated an indication of this as the probable number of treatments that will be required in order to guide the patient as to the cost.) These experiences have become less and less frequent in recent years.

In the early days it was often difficult to know what to do, for the relations of the consultant and practitioner to the electro-therapeutist had been completely prejudiced by the absence of medical electro-therapeutists, and particularly of medical men who took this work seriously. It has been a long uphill fight breaking down these prejudices, and even at the present time I do not think that there are more than half a dozen medical officers in charge of X ray and electrical departments of the large hospitals who are on the full staff; in many cases they are paid perhaps £100 a year, and are treated by their hospital committees and by the consultant staffs on this basis. Needless to say, the work in these hospitals is sometimes hopelessly inadequate, and is on the basis of £100 a year. Little wonder, then, if the average doctor treats the electro-therapeutist as if he were still doing the same work as his predecessor, the layman who operated switches and, doubtless, did his best for the patient.

INEFFICIENT DEPARTMENTS.

An X ray and electrical department is the most vital of all the special departments, and on its efficiency the medical services are dependent. If those in authority are content with a department on the basis of £100 a year, it follows that the surgical and medical practice of that hospital will be on the same footing. To be efficient and progressive, the working costs must be fairly high and the man who controls this expenditure and who does work of such vital importance must sooner or later take his place on the consultant staff—if he is worth it. And that is another point. In the past there has been little competition for these posts because their importance was not realised and little or no status accrued to the man who took them, or status was granted so grudgingly that competent men would not take the posts. Those who could not become surgeons or physicians and yet were unwilling to take up general practice went to the X ray or other special departments. Now the position is altered; in the war many men who formerly knew nothing of these things have learned the rudiments of X ray and electrical work. They see the

possibilities of our branch and are keen to start in practice. Very shortly there will not be a town of any size that has not one or more specialists—and they must be specialists, for if they are in general practice, their brother practitioners will not send them cases. In other words, there is now healthy competition which will ensure suitable candidates for any post that falls vacant. We have suffered in the past from men who have either taken their posts as a side line or because nothing else was available to keep them out of general practice.

Responsibility for Inefficient X Ray Work.

There is another factor also that has been a very strong deterrent to men taking up this work. I have said that their position, if granted at all, was granted grudgingly, and it is the consultant surgeons and physicians who have been to blame for this. They did not realise the importance of placing a first-rate man in the post and *making the post worth holding.* Personally, I have never suffered in the latter way, so that my remarks are based entirely on what I have seen and heard of in other towns, particularly in London, where the consultant staffs have often ignored the man whom they nominated and who spent a full half of every day in working for them at hospital. All their private work (except doctors' wives) they have sent to other men, or more often to laymen, leaving the man who, even if paid £100 a year, is their colleague, to pick up a living as best he could. The gross unfairness of this is manifest, for having only a half of the day left for private work, the radiologist cannot make a sufficient income to warrant the purchase of expensive apparatus, which must be kept up to date, unless he is loyally backed up by the men for whom he works in his hospital. I have often heard the other side of the question from surgeons who have told me they could not send their cases to their colleague because his technical work was so bad, or that they were bored by lengthy reports when they asked for radiographs. Even if this happened to be the case, as one has to admit it sometimes was, the fault lay in large measure, if not entirely, with the surgeons and physicians themselves on a two-fold charge. Firstly, by their lack of perception in appointing a second-rate man to the charge of a department that must inevitably grow to first-rate importance; secondly, by not backing up their nominee and placing his finances on a sound basis.

The Housing of the X Ray Department.

A few words as to the department itself, and then I am done. In almost every hospital in this country the X ray department has been housed in any place that happened to be available, often in a cellar, on the theory that a dark room was more easily made light-tight in a cellar than elsewhere, and that anything would do. In spite of this these X ray departments have grown as best they could, and many of them, including my own, are quite past praying for. To attempt to alter them is sheer waste of money—most of them cannot be altered to meet the necessities of present demands—to say nothing of the expansion of the work that must take place.

What are the requirements in a large hospital? In the first place the radiographic department should be either close to the wards and operating theatres or else on the way to them, so that surgeons and physicians may see things for themselves. We must get out of our hole-and-corner departments, out of our cellars or attics, for the importance of our work, to say nothing of our health, demands ample space and air in which to do our work—not just four hours a week, but a half of every day. For the radiograph work at least three rooms of ample size are needed: (1) for surgical X ray work; (2) for routine medical X ray work; (3) for demonstration purposes. There must also be an office with a thoroughly sound index and cataloguing system, a store-room, which will become an X ray museum, and ample dark rooms and photographic rooms. In addition, a number of rooms are necessary for the therapeutic side of the work.

THE DEMONSTRATION-ROOM.

The demonstration-room is the only one of which I wish to speak in detail, because I do not know of such a room in any of our hospitals. The demonstration-room, as I picture it, should be the place where the radiologist spends most of his time. In it all the X ray plates are examined and reported on. The walls are covered with viewing boxes and stereoscopes filled with interesting cases for demonstration, and a card-index catalogue gives the location in lantern-slide cabinets in which will be found a series of pictures to illustrate any subject on which the radiologist, or any of his colleagues, wishes to lecture, either with the lantern that is installed or in one of the lecture theatres. The office where the clerk works, and the store-room with its wealth of material, open into this room, so that everything is readily available for demonstrations.

A powerful X ray plant is provided with an upright screening stand and a couch to be used for demonstration and also for any special work that may be going on. Such a room would be a great attraction to his colleagues and to students, and would make available the enormous wealth of material that is at present wasted. His colleagues could bring the students to such a place without feeling that they were interfering with the routine work of the department. The radiologist, although maintaining his supervision, would depute more and more of his routine work to his medical assistant in the medical X ray room, and his radiographer and photographer would carry on their routine work in their rooms, unhampered by the intelligent but time-absorbing student.

A Social Centre.

There is another purpose that such a demonstration-room might well serve—i.e., as a social centre for the staff, where they could meet and perhaps have a cup of coffee while they discussed cases, football, or politics. The absence of social life which has resulted from the growth of hospitals, especially on the unit system, has been disastrous, and members of the staff may go from year's end to year's end without meeting their colleagues. I suggest that the radiologist has a great opportunity if he builds a room of this type and introduces such a tone into it that he can draw together the scattered forces and interests.

CONCLUSION.

In conclusion, ladies and gentlemen, the future, with its vast possibilities, is in our hands, and it is for us to rise to the great occasion the war has brought us in bringing our arts into the prominence that is their just due. Let us be worthy of it, and show that the confidence that is being timidly entrusted to us is not misplaced.

THE ADJUSTMENT OF THE REACTION OF BACTERIOLOGICAL MEDIA.

BY JAMES McINTOSH, M.D.,
WORKING ON BEHALF OF THE MEDICAL RESEARCH COMMITTEE;
AND
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(*From the Bacteriological Laboratory, London Hospital, E.*)

IT has been usual for some time now to adjust the reaction of bacteriological media by chemical titration. In this country Eyre's technique has generally been followed with considerable success, but every now and again one came across batches of media which gave poor bacterial growths. Subsequent investigations frequently showed that the reaction of the medium was at fault and mostly on the acid side, and accordingly an analysis of the whole process of the preparation and titration of media was made in order to determine on what this variability of the reaction depended. At the same time an attempt was made to overcome the objection that the chemical titration method does not indicate the true reaction—i.e., hydrogen-ion concentration. The procedure adopted below is the result of this investigation, and, if followed, will be found to overcome most of the difficulties. Full details of the experiments on which these recommendations are based will be published elsewhere.

(1) *Adoption of the Sörensen Logarithmic Method of Expressing the Reaction of Media.*

The adjustment of the reaction of bacteriological media by chemical titration does not indicate the true reaction of the medium. That the true reaction should be indicated is of the highest importance, as it is the ionic concentration that influences bacterial growth. Since the titration method was introduced great advances have been made in our knowledge of

the reaction of fluids. Acidity means excess of H ions over OH ions, and alkalinity the converse. Neutrality is merely the presence of equal numbers of H and OH ions. Such a state exists in samples of pure re-distilled water. This water is found experimentally to have a hydrogen-ion concentration corresponding to a dilution of approximately 1/10,000,000. In order, however, to express the reaction of biological and other fluids it was recognised that a simpler means of expression was desirable. Sörensen suggested that the logarithm of the degree of dilution should be used (with the negative sign dropped). Thus an N/100 solution would be designated 2. Now 1/100 is 10^{-2}, and the logarithm is therefore -2. If we drop its sign and speak of its value as $P_H = 2$, then there is a definite fixed value to the reaction of the medium. So every medium has its own P_H value. On this scale pure water has a P_H value of 7·07. It has now become universal to use these values when speaking of the reaction of any medium, and for bacteriological media we have adopted a reaction of P_H 7·60, corresponding to that of plasma.

(2) *Titration of Media at Room Temperature.*

The ordinary routine practice has been to titrate media at the boiling point. The idea was that by this procedure the dissolved CO_2 was driven off and a more accurate estimation of the acidity obtained. But bacteriological media contain many complex organic compounds which are dissociated at the higher temperature, with a resultant increase of acidity. This increase is more than sufficient to counteract the loss of CO_2. This explains the deepening of the colour of the indicator when broth, titrated at the boiling point, cools down. There is less dissociation then, or may we say that some of the dissociated molecules at the boiling point have reunited to form un-ionised molecules? In the case of simple solutions of inorganic salts titration at the boiling point or at room temperature makes only a slight difference. It is therefore obvious that one should titrate at room temperature.

(3) *Adoption of Thymol-phthalein as Indicator in the Titration.*

We found that the most frequent cause of error in the reaction of media arose from an incorrect judging of the indicator "end-point" selected. This trouble exists with most indicators, but is much more apparent in some than in others. The selection of an arbitrary shade of colour, as is the usual practice, allows of considerable latitude. Out of a series of indicators tested in broth and controlled against the hydrogen electrode, phenol- and thymol-phthalein proved the most suitable for the titration of media. With both of these the change is from a colourless to a coloured solution, while more important still is the fact that the change takes place within a slight range of hydrogen-ion concentration. In the case of thymol-phthalein the reaction is well within a half P_H, and the blue tint developed is distinct.

A series of observations showed that with thymol-phthalein exceedingly accurate estimations can be obtained. This is due to the ease with which its "neutral point" can be judged. The "neutral point" is taken as the first perceptible darkening of the medium on the addition of N/10 soda. The titration is carried out at room temperature. The change in the medium occurs quite sharply. Two factors are probably at work—namely, the sensitivity of thymol-phthalein and the change from a yellow to a blue colour.

The titration we find is best carried out in the following way. Measure 10 c.cm. of broth into a porcelain evaporating dish. Add 25 c.cm. distilled water. Have a control dish alongside prepared in exactly the same manner. As is well known, dilution with pure distilled water to the above extent does not interfere with the estimation of the reaction (hydrogen-ion concentration). Add 5 drops of a ½ per cent. alcoholic solution of thymol-phthalein to the first dish. Then run in N/10 NaOH from a burette. Stir continuously and look for a slight but definite darkening of the liquid. This might be more aptly described as the disappearance of the yellow tint and the development of a faint blue tint.

The relative ease with which this end-point can be reached is well shown in the following results, obtained by different observers.

Sample A.

N/10 soda required.	E.M.F.*	P_H	Observer.
3·6 c.cm.	0·775	9·08	J. G.
3·5 ,,	0·771	9·00	J. G.
3·4 ,,	0·770	8·98	J. M.
	Sample B.		
4·2 ,,	0·776	9·08	J. G.
4·1 ,,	0·771	9·01	J. G.
4·1 ,,	0·768	8·96	J. M.
3·8 ,,	0·760	8·80	J. M.
3·9 ,,	0·762	8·85	M. H.
3·8 ,,	0·760	8·88	M. H.
4·1 ,,	0·778	9·12	L. G.
3·8 ,,	0·764	8·89	L. G.

* Saturated calomel—KCl half electrode.

This gives an average P_H of 8·95.

Objection may be raised to the use of thymol-phthalein as an indicator, in that it necessitates the addition of excess of alkali. In the preparation of bacteriological media, however, this degree of alkalinity is necessary, as it leads to a precipitation of phosphates. Thus, one is not troubled by a constant deposition of these phosphates in the finished media. Moreover, the degree of alkalinity is only slightly above that of phenol-phthalein, which has been much used in the titration of media. A series of experiments showed that the addition of 10–12 c.cm. of N/1 HCl per litre was sufficient to correct the excess of alkalinity and bring the final reaction to that of plasma P_H 7·60, a reaction which we have found to give maximal bacterial growths.

Phenol-phthalein may be used to titrate media at room temperature, but it is not so satisfactory. With our so-called neutral "end-point"—i.e., first perceptible darkening or rose tint with no actual pink colour—the reaction obtained is about P_H 7·8. No acid need be added, and the medium after sterilisation will have a reaction of about P_H 7·6. We have decided, however, not to use this procedure, as it did not lead to a sufficient precipitation of phosphates. The maximum precipitation of these occurs at about P_H 8·0. A higher degree of alkalinity is not desirable with this indicator, otherwise one has to deal with the indefinite pink of phenol-phthalein, the estimation of which has been such a fruitful source of error.

Preparation of Ordinary Broth.

In the preparation and standardisation of ordinary broth we use the following formulæ:—

1. Mince 1 lb. of meat, free from fat, and then macerated in cold water (1000 c.cm.) over night, or as an alternative the mixture may be macerated at 40° C. for half an hour.

2. Boil for ½ hour over a gas-ring, filter through muslin and then through paper. Add 10 g. peptone and 5 g. of salt; make up to 1000 c.cm., dissolve, and steam for 45 minutes. The medium is now ready for standardisation.

3. Measure 10 c.cm. of the broth into a porcelain evaporating dish, add 25 c.cm. of pure distilled water. Have a control dish alongside prepared in exactly the same manner. Add 5 drops of a ½ per cent. alcoholic solution of thymol-phthalein to the first dish. Then run in N/10 NaOH from a burette, stirring continuously, and looking for a darkening of the colour as compared with that of the control dish. Just before this point a precipitate of phosphates occurs. The point may be more aptly described as the disappearance of the yellow tint and the development of a bluish. Note the quantity of N/10 soda required to produce this change. In practice it is best to make four estimations, and the first in which a distinct blue has been produced is rejected. With the average data a calculation is made as to the amount of N/1 soda necessary to produce the same reaction in the rest of the broth. This amount of soda is then added and the flask shaken.

4. The alkaline broth is now brought to the boil to deposit the phosphates, and then filtered free from them. The reaction is now adjusted by the addition of 10 c.cm. of N/1 HCl per litre of broth. This will give a final reaction corresponding to that of plasma, or P_H 7·60.

5. Control reaction with cresol-red and phenol-phthalein.

6. Lastly, place in tubes or flasks and sterilise in the autoclave for 20 minutes at 115° C.

Double-strength broth.—The double-strength broth indicated on the chart is prepared, except that all ingredients (meat,

peptone, salt) are doubled, in a similar manner to that described above. Before use the medium is diluted with an equal volume of distilled water, tubed and sterilised.

Control of the Reaction of the Finished Media.

As already indicated, in the majority of instances one aims at producing an end-reaction which will correspond to that of the tissues. In our case we have adopted the reaction of plasma, P_H 7·60, as the most suitable. After the titration and adjustment of the reaction by the addition of N 1 [illegible] it is advisable before sterilisation to control by some simple procedure the reaction of the medium in bulk.

To check the reaction it is not necessary to titrate out the broth again, but only to show that the reaction lies between two points. This can be done most conveniently by a suitable choice of indicators. Theoretically, the indicator points should lie as near as possible to P_H 7·60, but the lack of suitable indicators rather prevents this. Comparison against a known colour shade might be used, but the technical difficulties in preparing the necessary solutions and their non-permanence make them impracticable for ordinary routine practice. As a quick and reliable procedure one cannot do better than use two indicators with reaction points sufficiently near P_H 7·60. After a series of tests we have found that cresol-red and phenol-phthalein give satisfactory results.

In order to carry out this control two small samples (3 c.cm.) of the medium are diluted in test-tubes with an equal bulk of distilled water. To the first tube are added 2 drops of 0·5 per cent. alcohol solution of phenol-phthalein and to the second 2 drops of 0·02 per cent. solution of cresol-red. (Watery solution, to which 15 per cent. alcohol may be added as a preservative.) If the reaction is correct no colour change should occur in the first tube, while a rose to a pinkish colour should be noted in the second. Thus the reaction of the tested sample will not be as high as P_H 7·90, the point at which phenol-phthalein first shows a trace of pink, but will be over 7·6. Cresol-red developing a rose-pink (weak permanganate colour) at P_H 7·60. If this rose colour does not appear, but only a brown shade, the medium is on the acid side, while if a pink is obtained with phenol-phthalein the medium is too alkaline. The error in either direction can be adjusted by the addition of a few drops of N 1 NaOH or HCl to the medium in bulk and the reaction again controlled.

Before use it is, of course, necessary to sterilise the medium by heat (autoclaving or steaming), but the increase in acidity at this stage is slight (less than P_H 0·2), and is sufficiently allowed for. The above procedure we have found quite satisfactotory as an ordinary routine.

Quite recently it has been claimed that very exact evaluations of the reaction of media can be made without the use of the elaborate solutions of standard hydrogen-ion concentrations. This method was recently introduced by Barnett and Chapman,[1] and is based on the work of Salin. It consists in superimposing the extreme colours of a particular indicator. All that is necessary is weak acid and a weak alkaline solution. Barnett and Chapman advocated the use of phenol-red, which gives a range of reactions between P_H 7 and 8.

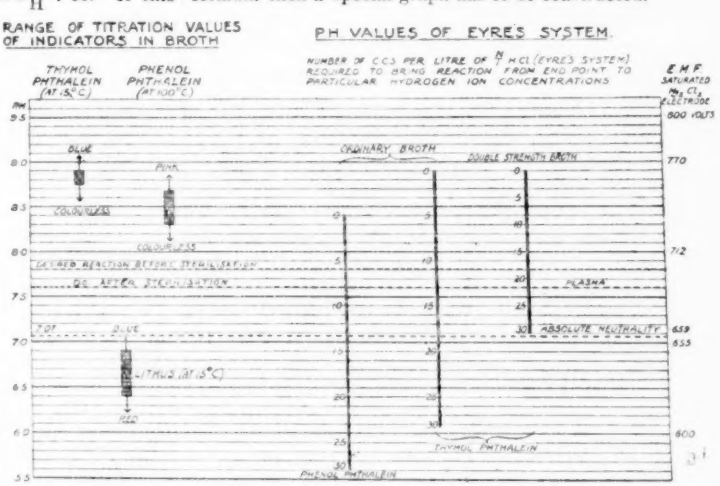
The test is carried out much as follows: Two rows of six test-tubes are placed in a double rack and into the tubes in the front row are measured 5 c.cm. of dilute acid (1 drop of concentrated HCl in 100 c.cm. of water) and into the other row 5 c.cm. of dilute alkaline (N 20 of NaOH). A solution of the indicator having been prepared (phenol-red 0·01 per cent. watery solution), drops of it are added to the various test-tubes in the amounts indicated below.

Series No.	Front row (acid series).	Back row (alkaline series).	P_H values.
1	9	1	6·9
2	8	2	7·2
3	7	3	7·5
4	6	4	7·7
5	5	5	7·9
6	4	6	8·1

To test media with this colour scale 1 c.cm. is placed in a tube and diluted with 4 c.cm. of distilled water. Then 10 drops of the indicator solution are added and the shade of colour compared with that of the above couples when viewed together. The reaction of the medium can be corrected by addition of weak acid or alkali, and a simple calculation will then give the amount necessary per litre. Although this procedure overcomes the difficulty of preparing complicated standard solutions, we have not found the method as accurate as has been stated. In the first place, there is the old difficulty of matching shades; secondly, the scale colours do not completely match those of the colours in broth; and thirdly, the scale is not permanent. The reaction obtained was never nearer than 0·2 P_H as found by the hydrogen electrode.

(5) *Relation of the Eyre Notation to the Hydrogen-Ion Concentration.*

The chief defect of the Eyre system is that it expresses the *chemical* titration values and not the ionic concentration. A series of observations, however, showed that the Eyre system could be made to indicate P_H values. These values are obtained by means of a graph, but the graph is only true when the medium is prepared in a constant manner and the neutralisation reaction known. The P_H values were obtained by adding increasing amounts of acid (0 to 30 c.cm. of N/1 acid per litre) to broth whose neutralisation reaction was known exactly. If the medium is prepared according to a different formula then a special graph has to be constructed.



The experiment given below shows the change, in the case of broth prepared according to our formula, in hydrogen-ion concentration on the addition of increasing quantities of acid. A parallel series was made, in which one sample had been titrated with phenol-phthalein as indicator and the other with thymol-phthalein.

A. *Ordinary Broth (Thymol-phthalein as indicator at 15° C.).*

	N/1 acid per litre in c.cm.						
	0.	5.	10.	15.	20.	25.	30.
Reaction...	8·73	8·32	7·84	7·35	6·94	6·44	60·8

B. *Ditto (using Phenol-phthalein as indicator at 100° C.).*

Reaction...	8·43	8·00	7·60	7·13	6·65	6·15	5·70

It would therefore appear that with ordinary broth prepared in the manner already described there is a constant relation between the P_H values and the amount of acid added.

[1] Jour. Am. Med. Assoc., 1918, lxx., 1062.

In fact, the addition of 1 c.cm. of N/1 acid per litre produces a change of about 0·1 P_H in the reaction. In addition, by means of the graph here shown it is possible to prepare media of almost any desired reaction.

(6) *Other Media.*

Sugar containing media, owing to the great production of acid during sterilisation, cannot be prepared in the manner described. The sugars should be sterilised separately in water and then added to the sterile broth.

Agar media are best prepared by dissolving the agar in the neutralised broth. The error in this is small, as for all practical purposes agar can be regarded as neutral.

Gelatin media can be prepared and standardised in a manner similar to that described for broth.

Conclusion.

In conclusion, it may be said that failures to adjust the reaction of bacteriological media correctly arise chiefly from the use of unsuitable indicators, difficulty in judging the indicator "end-point," titration at the boiling point, and the hydrolysis which occurs during the process of sterilisation. The chemical titration method has been found to be quite a reliable means of adjusting the reaction in routine practice, and by the procedure described above it is quite easy to adjust with considerable accuracy the reaction of a batch of media to the desired point. By means of a specially prepared graph the Eyre system will, with certain precautions, indicate P_H values. In the colorimetric method the preparation of the accurate standard solutions required is much more difficult than is usually believed, and the error in the reaction is often quite appreciable when tested against the hydrogen electrode. The ideal method of adjusting the reaction would be by the hydrogen electrode, but the use of this apparatus requires a technical skill and knowledge which places it at present beyond ordinary laboratory application.

FOUR CASES OF TRAUMATIC RUPTURE OF INTESTINE WITHOUT EXTERNAL INJURY.

BY E. GERALD STANLEY, M.S. LOND., F.R.C.S. ENG.

THE interesting article by Mr. W. H. Battle in THE LANCET of July 19th induces me to record four further cases of traumatic rupture of the intestine without external lesion which came under my care during the war.

Account of Cases.

CASE 1.—A convalescent soldier of a native Indian regiment was missed from his cot, and was eventually discovered in a well some 15 ft. below the ground, his progress having been arrested by an iron strut. He was sitting on this iron bar complaining of pain and was withdrawn with difficulty. In all probability he was thrown into the well by a friend, but the whole story was a mystery and is irrelevant in any case. I only saw this patient a day after the accident (probably at least 14 hours after the infliction of the injury). He lay in his blanket quietly, and even when he could be induced to speak his replies were meaningless; he had vomited once. Pulse was 100, full, and of plus tension, and temperature 97° F.

My immediate impression was that he had fractured his skull and that there was much blood between the cortex and skull. (This was quite wrong, but first impressions are apt to bias the diagnosis.)

On examination I found no localising signs of cerebral compression, but abdominal examination revealed a picture I shall never forget. There was no external sign of injury whatever. The abdomen was bulging, did not move on respiration, and the black skin was stretched so tightly that it appeared ready to burst. The fullness was most marked on the left side of the abdomen. The abdomen was dull to percussion except for a small area in the right iliac and lumbar region and the dullness did not shift. The whole abdomen appeared to be occupied by a solid mass; the muscles were quite lax and the patient was lethargic; and whether his movements on palpation indicated pain or resentment at being disturbed I cannot tell. Nothing abnormal was discovered per rectum, and fæces were passed normally. A catheter drew off about 8 oz. of clear urine. There was a past history of malaria but no note of splenic enlargement. I hardly think this clinical picture would suggest rupture of the intestine, unless the patient was in the last stages of peritonitis, but even then dissolution is not preceded by a full-bounding pulse of 100. My impression was that the man had ruptured his liver or spleen, or both, probably the spleen only, and that the abdomen was full of blood; yet the pulse-rate and temperature puzzled me, as well as his curious lethargic condition and the solid mass that apparently occupied most of his abdomen. I opened the abdomen some two and a half hours later through a long incision to the left of the middle line. The patient showed but slight signs of shock. A very large quantity of dark red blood poured out and a truly enormous spleen occupying most of the abdomen was seen. The organ was ruptured in a stellate manner, and split into seven or eight pieces, one extending right into the hilus. Bleeding recommenced, and the vessels were found and clamped, a difficult manœuvre as the pedicle could be felt but not seen. The organ was removed piecemeal, and when the pedicle was now inspected it was seen that the clamp had seized a small part of the fundus of the stomach and a part of the extreme left edge of the great omentum.

To prevent sloughing of the stomach and perforation, a small portion of the greater omentum was removed and the stomach area enfolded by a purse-string suture. A small quantity of turbid fluid was now noticed in the left renal pouch and obvious commencing peritonitis in the upper left quadrant of the abdomen, this observation leading to the discovery of a tear 1 in. long in the anti-mesenteric border of the jejunum 6 in. from the flexure. This was closed by a single line Connel suture of thread. The left kidney pouch having been mopped dry, the abdomen was closed and drained. The operation lasted 43 minutes and the patient showed no undue amount of shock, but died from general peritonitis two days later.

CASE 2.—An Australian private, seen eight hours after the accident, stated that something struck him violently in the abdomen after a shell burst in a house close by. (The missile was probably a piece of masonry, as his clothes were full of brickdust and rubbish.) On admission to C.C.S. he had a good colour and was rapidly recovering from slight primary shock. Temperature 98° F., pulse 80. He vomited once immediately after admission, and complained of pain in the epigastrium. On examination there was slight tenderness and rigidity just above the umbilicus and across the abdomen, but no dullness in the flanks, and liver dullness was normal. I decided, after consultation with Colonel G. E. Gask, C.M.G., D.S.O., who happened to be in our operating theatre at the time, to do a laparotomy, Colonel Gask being so kind as to assist me. We found a tear three-quarter way across the jejunum about 18 in. from the flexure, and some turbid fluid round the intestine. There was no sign of peritonitis or other lesion. The rent was closed by a single layer Connel suture of thread, the surrounding peritoneum was gently cleansed, and the abdomen closed without drainage. The anæsthetic was gas and oxygen, most ably given by Capt. A. V. Maybury, R.A.M.C.(T.), and local infiltration with novocaine.

The patient made an uninterrupted recovery.

CASE 3.—The patient, a private in a British infantry regiment, convalescent in India from Mesopotamia, had attempted suicide by a 20 ft. leap from a window. I first saw him six hours after. He was shocked, pale, restless, and excited. Pulse 120 and of poor volume. Temperature 98·2° F., and he complained of much suprapubic pain. No external injury was found. Six ounces of quite clear urine were obtained by catheter, and the patient felt no desire to micturate. The lower abdomen moved little on respiration, was rigid, and markedly tender. A spot of cutaneous hyperæsthesia was marked in the mid-line just above the umbilicus; the patient had not vomited.

Here again I did not suspect the rupture of the intestine revealed at operation, and though I guessed the patient had an intraperitoneal rupture of the bladder, I unwisely delayed operation. The man's condition improved under morphia, but at mid-day his pulse-rate had risen to 130 and he complained of severe pain in the lower abdomen. By this time some bruising was visible above the pubes. On the basis that the bladder was ruptured I proceeded to open the abdomen in the middle line below the umbilicus. The bladder was collapsed and contained a few ounces of clear urine, and a tear 3 in. long was found on the postero-superior surface and extending into the peritoneal cavity. The tear was sutured and a large quantity of bloody urine mopped out of the pelvis. The urine was dirty and turbid and had a marked fæcal smell, caused by an oblique half-inch tear in the small intestine 3 ft. from the cæcum; this was sutured, while a small rent in the parietal peritoneum over the sacral promontory was not interfered with. A tube was left in bottom of the pelvis and another to drain the bladder. Dark fæcal fluid continued to come through the pelvic tube for six or seven days; this tube was removed on the tenth day and that in the bladder a few days later, after which

the cystitis, which had necessitated frequent washing out of the bladder, subsided and the fistula closed. (Possibly immediate closure of the bladder without drainage would have been the best course.) Eventually the patient left en route for Egypt and England.

CASE 4.—A corporal of sappers of the French Army was clearing a wrecked bridge when a loosened iron girder struck him full in the chest and precipitated him into a trench 6 ft. deep in water. He must have been rendered unconscious as he made no effort to swim or get out of the trench, and his comrades, who saw the accident from a short distance away, found him in the process of drowning. The rescue party was seen by the enemy, and the unfortunate man received in addition a slight bullet wound of the scalp. I saw this patient within an hour. He was in the state of severe primary shock, but morphia, warmth, and rest improved his condition so rapidly that three hours later I was able to operate. This patient showed every evidence of rupture of the intestine and peritonism. The blow had fractured the seventh and eighth ribs on the left side, and bruising was evident across the abdominal wall in the left hypochondrium and epigastrium. On opening the peritoneal cavity much bright red blood at once escaped. The spleen and liver were uninjured. A complete transverse division of the jejunum was found about 3 in. from the flexure, the tear extending into the mesentery and involving two fair-sized arteries. The mesentery was so short at the place torn that the tear extended to the posterior abdominal wall, just beneath the termination of the duodenum. An end-to-end anastomosis was performed with some difficulty after the bleeding vessels had been tied and the little tear in the mesentery closed. Although turbid intestinal contents had escaped there was no sign of commencing peritonitis. The patient stood the operation well, and beyond great difficulty in getting the bowels to work and troublesome vomiting, which suddenly ceased on the third day, there is nothing of import to record in his convalescence.

The Relation of Cause to Site of Rupture.

The cause of traumatic rupture of the intestine must obviously be force applied to the abdomen or chest, as probably no traumatism from within, other than mechanical violence during operation or foreign bodies introduced per rectum would burst the intestine. Battle in the table in his article already referred to gives "other causes." Unfortunately I have not access to Berry and Guiseppi's paper or to the Transactions of the Royal Society of Medicine, II., 1909, but as far as my memory serves me no traumatic bursting effects from within are mentioned. The mechanics of the traumatism are the same when the actual cause is a fall, a kick, a blow, or even pressure, as in the case of a street accident.

More important than the nature of the blow is its velocity, on which depends length of time during which the force is applied, and thus the rapidity of compression of the abdomen. The size and shape of the instrument are also important, but to a lesser degree. If the rate of compression is rapid the abdominal muscles have no time to throw themselves on guard and protect the contents of the abdomen, and, moreover, the intestines are given no time to slip out of the way. If the abdominal wall is slowly compressed by the fist (as in the manœuvre described for compressing the abdominal aorta) the intestine can never be ruptured whatever force is applied. Conversely, the intestine has been ruptured from a blow of the fist in the epigastrium in boxing, the velocity of the moving body being the determining factor in each case.

In Cases 1 and 3 the moving body was the patient's own body and the velocity that due to gravity. In Cases 2 and 4 the patient was struck by a moving body, in each case with considerable velocity, but probably not so great as in Cases 1 and 3. As to the site of rupture, it used to be taught that the most fixed part of the intestine, being unable to escape the compressing force, was the part most frequently ruptured. In theory this seems probable, but in actual fact the reverse holds. The most fixed parts of the intestinal tracts are the duodenum and parts of the large intestine other than the cæcum, the transverse and pelvic colon, and the rectum. Experience shows, however, that the most movable parts of the large gut—the cæcum, the transverse colon, and pelvic colon—are the most frequently ruptured, in that order. The rectum is well protected by the bony pelvis from all but the most severe crushes. The duodenum is placed chiefly on the inner side of the watershed formed by the vertebral column and is protected by the latter in that a compressing body from before backwards will meet the vertebral column first; but this very protecting influence to the greater part of the duodenum renders the transverse part the more liable to injury as it crosses the watershed on its summit. The duodenum is further protected by the ribs laterally and anteriorly, by the liver, and by the air cushion of the colon which crosses it, and is thus fairly immune from injury, except in its third or transverse part. Far otherwise is it with the jejunum and ileum.

The coil of intestine nearest the abdominal wall at the point struck is usually the coil in which rupture takes place, and in so far as the first few feet of the jejunum and the last few feet of the ileum before the ileo-cæcal junction are usually in this position they will tend to be injured. The mechanism is simple. If the abdomen is struck above the umbilicus the force is transmitted to the first few feet of the jejunum. The mobility of this coil allows it to be pushed till it is checked ultimately by the vertebral column, and between the latter and the moving body it is crushed and ruptured. The frequency with which one finds a small tear in the posterior parietal peritoneum close to the summit of the vertebral column would suggest this mechanism, also the bruising and laceration at the tear. A parallel situation occurs at the ileo-cæcal junction.

In Case 3 a small tear was found over the sacral promontory, the crushing force having first ruptured the bladder and then crushed and ruptured the intestine against this bony prominence. In Case 4 the jejunum was torn unusually close to the duodeno-jejunal flexure. An unusual feature of the cases recorded above is that in two of them other organs were ruptured at the same time.

In Case 1 it is not surprising that a spleen enlarged by malaria should be ruptured, but one would think that its size would protect the intestine beneath it. I believe that in this case a coil of jejunum must have lain in front of the enlarged spleen and have been driven into this organ, which, rupturing, allowed the intestine to be torn against the vertebral column in the usual way. In Case 3 also another organ was ruptured. As the accident occurred at 2 A.M. it is reasonable to suppose that the bladder was fairly full as the man would not have micturated for five or six hours. The tear in the parietal peritoneum suggests that the bladder was first ruptured against the sacral promontory and then the ileum caught and crushed at the same spot as the ruptured bladder.

Diagnosis.

There is no sure and invariable sign or symptom, or group of signs or symptoms, which render the diagnosis certain. Occasionally, as in Case 4, a group such as rapid pulse, marked abdominal rigidity, and extreme tenderness, with the history, and with visible bruising and fracture of the ribs, makes rupture of the intestine almost a sure diagnosis; while on the other hand, the absence of these signs and symptoms in Case 2 made such a diagnosis improbable. The important signs and symptoms are:—

(*a*) *Time after accident.*—This, of course, influences the whole picture. If the patient is seen early, as in Case 4, primary shock is sure to be the predominant factor, while if seen late commencing peritonitis will control the signs and symptoms. From my small experience it would seem that peritonitis commences much later than one would expect. Only in Case 1 was there any sign of peritonitis, and this was only beginning.

(*b*) *Pulse-rate.*—This is always rapid, due to primary shock. It will fall as the shock passes off, and rise again if peritonitis commences. It is thus of no help in the diagnosis of intestinal rupture.

(*c*) *Temperature.*—This is generally normal or subnormal, due to primary shock. It will rise a little as the patient improves, but any rapid or marked rise is due to peritonitis, and I cannot agree with Battle that a high temperature indicates a "definite lesion in the wall of the gut." From my experience, and from cases I have seen with others, I would say that a high temperature indicates recovery from primary shock (if early), or peritonitis (if late).

(*d*) *Shock.*—Primary shock is nearly always present. Secondary shock may also occur later, especially if other injuries are present or much hæmorrhage: it is a bad omen. Primary shock should rarely prevent operation with modern methods of treatment and anæsthesia.

(*e*) *Rigidity; cutaneous hyperæsthesia.*—This is an important indirect indication that the gut may be ruptured; it

may be hardly noticeable (as in Case 2). Also it is well to remember that contused muscles are often rigid and tender where no gut lesion exists. A more important sign and one rarely mentioned is cutaneous hyperæsthesia. A ruptured gut will give rise to cutaneous hyperæsthesia in its own cutaneous region, and it is elicited by picking up the skin and gently lifting it away from the underlying muscle before pinching it. The muscle tenderness is thus excluded. I have remarked this hyperæsthesia in many cases of gunshot wound of the intestine, and it was pronounced in Case 3.

(*f*) *Vomiting.*—This is not influenced by the proximity of the lesion to the stomach. In gunshot wounds of the intestine I have found vomiting rarely absent, but I believe it was due to the injury to the parietal peritoneum rather than to the gut itself.

(*g*) *Flank dullness.*—I believe the presence of this sign, especially in the left flank, to be of great importance. Rupture of the spleen or liver may cause it alone, but when the jejunum is torn blood is sure to trickle into the left kidney pouch and give rise to dullness on percussion. This sign was present in two out of three of my cases where the jejunum was torn; in the third case the bleeding had been insignificant. In Case 4 the dullness caused by the bleeding from the two arteries in the lacerated mesentery was so extensive that before operation I believed the spleen to be torn. Flank dullness with a ruptured gut is caused by fluid in the kidney pouch, either blood or the serum of an early peritonitis.

(*h*) *Absence of liver dullness.*—This must be rare. It usually occurs late and indicates peritonitis, the paralysed intestines masking the liver.

The only two signs which appear of real use in diagnosis are thus cutaneous hyperæsthesia and dullness in the left flank. The difficulty of diagnosis thus makes it clear that if there exists in the mind of the surgeon a suspicion that the intestine be ruptured the right procedure is to open the abdomen and see, providing the patient can stand the added shock of the operation.

Operation.

The outlook for operative treatment depends, of course, primarily on the length of time elapsed since the injury. The operation itself is likely to be successful if the shock receives proper treatment and if the anæsthetic is gas and oxygen, combined with local infiltration of the abdominal wall by novocaine (or spinal anæsthesia). The incision must be long and adequate, and no retractors or other instruments of torture to the central nervous system should be used. The abdominal wall should "flap in the wind" and reveal all its contents, and the patient should not be rolled or turned during or after the operation. The success of the operation depends also on whether the lesions are found at once. The portion of gut ruptured will be between the point of impact of the moving body on the abdominal wall and the side or summit of the vertebral column. A small tear in the posterior parietal peritoneum often exists. Resection of gut will only rarely be necessary. Tears in the mesentery, unless very severe and ragged, do not indicate resection unless the former is detached from the gut for some inches. A contused or lacerated tear, complete or partial, of the gut need not cause alarm or necessitate resection.

If the tear is complete and the edges bruised and ragged it is best to suture the torn ends together, folding in all the contused portion by a Connel stitch in the form of a diaphragm within the lumen. This diaphragm, so enfolded, will look after itself and the anastomosis be secure, for if the bruised intestinal edge is dead it will be digested. If the tear is contused and partial enfold and suture in the same way, converting a longitudinal tear into a transverse line of suture.

Gunshot wounds have shown the extraordinary vitality of the intestine; that there is a good longitudinal anastomosis in its submucous coat; and that much more extensive sutures can be performed with safety than was imagined. So certain is it that most recoveries take place after suture that one may justifiably insist that resection should only be performed in the minority of cases where the necessity is strikingly obvious. If adjacent to the main tear are found two, three, or a dozen other tears, they should all be sutured; this will take no more time than a resection. To perform a resection in order that sutures may be placed in healthy tissue is to my mind a procedure based on false premises and greatly endangering the patient's life. The contused tissue can be cut away with scissors or, better still, enfolded to any extent by sutures placed in healthy tissue; no narrowing of the gut lumen or harm will ever come from this method. A single sero-muscular suture suffices for tears in the intestine. In those cases where resection is an absolute necessity it should be performed as simply and rapidly as possible, and the most simple and rapid method of end-to-end anastomosis is that shown to me by my friend Gordon Taylor; no special instruments are needed other than two Mayo-Oschner forceps.

Drainage is hardly ever necessary and the abdomen should be closed with sutures of strong silk, rubber sheathed, taking up the whole thickness of the abdominal wall if the patient's condition causes anxiety; should a ventral hernia occur it can be cured later.

Paris.

CŒLIAC DISEASE OR BORIC ACID POISONING?

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IN Gee's original paper[1] in which "the cœliac affection" (consumptive bowels, diarrhœa alba) was first described and named, the disease is stated to occur most often in the first five years of life, the distinctive symptoms being: (*a*) a looseness of the bowels not amounting to diarrhœa, the stools being bulky, pale, not watery but very foul-smelling; (*b*) a soft doughy abdomen which may be distended and rather tight; (*c*) emaciation with muscular weakness; and (*d*) pallor. The onset of the disease is gradual, though sometimes sudden. The course is always slow, running for months or years and ending either in complete recovery, partial recovery (relapses and stunted growth), or in death from some intercurrent affection.

Summary of Recent Literature.

These particulars may be supplemented from the most recent literature. Confirming Gee's observations, Still, who has seen the condition as early as the eighth month, adds that dropsy may develop, the temperature is usually not raised, neither liver nor spleen is enlarged, and the dentition is not delayed. He mentions skin eruptions, including purpura, as occasional phenomena, and shares Gee's rather paradoxical view that the disease is often mortal and yet may run on for years to end in complete recovery.[2]

As to the cause and symptoms, the facts hardly carry us beyond speculation. Still raises the question of their relation to scurvy, and again to micro-organisms in the stools, but most inclines to see in them a likeness to tropical sprue.[3] Hutchison and Waugh,[4] who find the disease is as common in private as in hospital practice, speak of the cause as obscure, but suggest either a pancreatic deficiency, a hepatic deficiency, or, following Herter, some abnormal intestinal flora.

This uncertainty on the ætiological side is reflected in some measure when we come to the question of treatment. Hutchison and Waugh affirm the primary importance of diet, and would exclude fatty foods, seemingly because they find fat in excess in the stools. To Gee also the regulation of the diet is the main consideration, and of all foods "cow's milk is the least suitable." Poynton, Armstrong, and Nabarro write: "In some cases milk seems most injurious, in others it has been the great stand-by."[5] But the most emphatic condemnation of cow's milk comes from Still. "First and foremost ..... is the prohibition of all fresh cow's milk. I lay great stress on this point, for often ..... the mother has been specially advised to 'give the child nothing but milk.' No surer method could be adopted for

[1] St. Bartholomew's Hospital Reports, 1888 xxiv., 17–20.
[2] Common Disorders and Diseases of Childhood, by Dr. G. F. Still, third ed., 1915. [3] Loc. cit.
[4] Diseases of Children, edited by Drs. Garrod, Batten, and Thursfield, 1913.
[5] Recurrent Diarrhœa in Childhood, by F. J. Poynton, R. A. Armstrong, and D. N. Nabarro, Proc. Roy. Soc. Med., vol. vii., Pt. 2, Med. Sect., p. 10.

perpetuating the trouble, and the omission of all fresh milk is generally sufficient alone to cause improvement ....." Though unable to explain the harmful effect of cow's milk, Still is inclined to suspect its fatty contents. Nevertheless, he admits that dried cow's milk is apparently harmless, as also is condensed milk or ass's milk.

On the whole, therefore, cow's milk would seem to bear some intimate relation to the symptoms, though it must be admitted that the foregoing opinions appear to include some puzzling contradictions.

Account of a Case.

To this summary of the current views I wish to add particulars of a case with some special features which seem to throw light on the problem.

The patient was a baby girl of 8 months, the only child of a medical man practising in the Home Counties. At first breast-fed, she was weaned to cow's milk, and for a while made satisfactory progress. In the early summer the milk-supply was changed; a fortnight later she began to ail—the bowels became loose and she took the bottle unwillingly—but she was sent away for six weeks to another part of the country and gradually became herself again. A fortnight after her return (to inter alia the same milk-supply), and 16 days before I first saw her, she again ailed and went off her food, though without any definite symptom except that her weight ceased to increase. At the end of this time her feeds, which had consisted of sterilised cow's milk and barley water in equal parts, were changed to whole milk, also sterilised. The next day she passed an extraordinarily bulky and copious motion, and this seems to have been responsible for my coming into the case the same evening.

On examination she was organically sound, with no distinctive signs of rickets or scurvy, but she was pale and flabby, with dark lines under the eyes and cold extremities. The abdomen was full, soft, and not tender. Though very much out of sorts she had a normal temperature, and was in no way acutely ill or seemingly in any pain. The general hygiene of the child was excellent, and the storage of the milk and preparation of the feeds were above suspicion—the mother had been a hospital sister—and I contented myself (for a reason given later) with prescribing raw meat juice as a daily antiscorbutic and, in view of the child's age, a small quantity of farinaceous food to be added to the bottle feeds.

During the next six days she became steadily worse. When I then saw her she was even paler than before, more restless and fretful, with no inclination to feed, and her weight was falling, but still no fever and no pain, unless, possibly, some uneasy feelings in the abdomen. During these six days, however, the outstanding feature of the case had been a looseness of the bowels, two, three, and even more motions a day, and almost all of them soft, pale, foul-smelling, and of voluminous size, so large, indeed, as to provoke comment that they could issue from so small a child.

Considerations as to Cause of Illness.

The case plainly conformed to the descriptions of cœliac disease. But this diagnosis did not solve the practical question as to the cause of the illness, and for guidance in this direction I relied on the following considerations:—(*a*) The child was organically healthy; (*b*) its home environment and daily hygiene were commendable in all respects; (*c*) its feeds were prepared at every stage in a way which left nothing open to criticism; (*d*) the symptoms pointed to a mild gastro-intestinal irritation. On these grounds it was hardly possible, even at the first examination, to resist the inference that the trouble was set up by a something harmful in the milk as supplied from the dairy. That this was improbably a bacterial infection was attested, in some measure, perhaps, by the associated mildness and persistence of the symptoms, but more unequivocably by the absence of fever, pain, and any ordinary diarrhœa.

The father, however, would not hear of my first suspicions. He had, it appeared, been at special pains in arranging for his infant's milk-supply which was obtained from a neighbouring dairyman—a patient of his—whose farm was close at hand; and he had personally obtained from him a verbal guarantee that nothing in the nature of a preservative should be used; further, the milk reached him by special hand-delivery within half-an-hour after each milking. But at my second visit he was persuaded to cancel any further deliveries from this source; and also to send a specimen of the milk for examination by the county analyst.

With no other change in the treatment than a new supply of fresh cow's milk the aggravation of the symptoms ceased, and within a couple of days the child began to mend, though it was some months before she was herself again. The symptoms never recurred.

The analyst's report showed that the milk contained boric acid to the amount of 5 gr. to the pint—i.e., the child had been taking at least $7\frac{1}{2}$ to 10 gr. of the preservative daily.[6]

Toxic Effects of Boric Acid.

No special attention appears to have been given to the toxic effects of boric acid on infants, but all authorities are agreed that with adults the drug, in doses varying with the idiosyncrasy of the patient, acts as a mild gastro-intestinal irritant. From a comparison of several accounts[7] it may be said that the symptoms in adults begin with loss of appetite. Digestion is deranged, nausea and even vomiting may occur, and a mild diarrhœa sets in, but without any rise of temperature. The patient suffers no pain, but becomes weak, depressed, and sleeps badly. The weight begins to fall, and skin eruptions, including petechiæ, develop. Fatal cases are recorded.

The resemblance between these symptoms and those of cœliac disease are noteworthy; and though this might mean nothing more than that both are varieties of gastro-intestinal irritation, nevertheless, in view of (1) the analyst's report, (2) the contemporaneous relation between the first onset of the symptoms and the first supply of this milk, (3) the recurrence of the symptoms when this supply was resumed, (4) their aggravation as soon as the milk was given undiluted, and (5) the curative effect of merely changing the supply, the case appeared beyond any clinical doubt to be one of boric acid poisoning.

Is Cœliac Disease Due to Borated Milk?

If cœliac disease is, in fact, boric acid poisoning, the symptoms being due, not to cow's milk, but to borated cow's milk, the seemingly contradictory observations on treatment which have been quoted above appear in a new light. To give cow's milk, says Still, is the surest way to perpetuate the trouble, and merely to abstain from it is generally enough to cause improvement. Cow's milk, says Gee, is the least suitable diet. Poynton, Armstrong, and Nabarro emphasise the harmfulness of cow's milk in some cases and its good effect in others. Further, dried milk, condensed milk, or ass's milk (these contain no preservative) is a safe and harmless diet.

These statements, which cannot be explained by any of the hypotheses already quoted, at once fall into line on the assumption that borated milk is the cause of the trouble.

I would add the following historical note. Boric acid was not employed as a food preservative until comparatively recent times, and THE LANCET was the first to draw public attention to its use as a novel preservative of milk. This was in 1887.[8] The date of Gee's paper describing the new "cœliac affection" is 1888. *Ex hypothesi*, the earliest cases of cœliac disease could not have occurred until the later 'eighties.[9]

Conclusion.

Not to base too wide a conclusion on the testimony of a single case, it may be claimed that some examples, at any rate, of so-called cœliac disease are in fact cases of boric acid poisoning; and in view of the importance of the matter it would not be justifiable to withhold this conclusion from others who, with cases of this disease, consumptive bowels, or diarrhœa alba, may be in a position to help in settling whether all cases have this causation.

In undertaking a chemical analysis for boric acid it should be remembered that the preservative may not be present in each day's milk-supply, but it is more likely to be made use

[6] It may be of interest to mention that the case had a legal sequel. The father, with commendable public spirit, brought a civil action against the milkman and was awarded the nominal damages he claimed. The defendant in the witness box declared that until this suit was started he did not know what boric acid was, but in cross-examination he admitted a conviction elsewhere for this very offence. Indeed, the impression left on those who heard his evidence was that he kept a supply of boric acid somewhere at the back of his premises, and, in the summer months at any rate, ladled into his milk just so much as accorded with his feelings as a meteorological prophet.

[7] Text-book of Pharmacology and Therapeutics. By Professor Cushny, 6th ed., 1915. Manual of Pharmacology, by Professor W. E. Dixon, 4th ed., 1915. Text-book of Pharmacology, by Professor Sollmann, 1906. B.P. Codex, 1911.

[8] THE LANCET, 1887, ii., 333.

[9] Just as the first cases of infantile scurvy, as recorded from 1878 onwards, had to await the spread in the earlier 'seventies of the novel practice of sterilising cow's milk.

of in hot or muggy weather.[10] Further, boric acid is very widely used commercially; it may legally be added to cream and butter; it has often been found in tinned foods, dried fish, and meats, bottled (liquid) eggs, &c. A patient may therefore be poisoned by one or more of a variety of comestibles.

SOME REMARKS ON "SPANISH INFLUENZA": ITS NATURE AND ÆTIOLOGY.

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I TOOK over charge of Grey's Hospital in January, 1918, and admitted cases of influenza every month from that time onward. In the majority of cases the malady was uncomplicated, but in some there followed a true influenzal pneumonia of the type so common in the Edinburgh epidemic of 1889. Only one case died up to October, 1918, but about the 12th of that month there was an enormous rush of cases, and between that date and the end of the month 234 cases were admitted, of which 41 died (29 natives and 12 whites). At that time, owing to the war, I was the only resident, and owing to the amount of work in the town and district the visiting staff were unable to render any assistance.

In the 1889 epidemic there was no heavy mortality, although, following in its wake, we had a large mortality from other diseases, especially tuberculosis, which had been lit up, perhaps, by the influenza, or, at least, had profited by the lowered resistance of its victims. In the case of the so-called "Spanish influenza," however, the mortality has been so enormous as to raise a grave doubt as to whether this mortality was actually attributable to influenza or to some other more malignant infection. If it is a new disease, what are its characteristics, or, if not, is it a recrudescence of some malady which has lain dormant for some generations?

Symptoms of the Epidemic.

The main symptoms of this epidemic in my experience, have been:—

(*a*) Malaise, headache, and pains in the body. In the fatal cases pains extending down whole length of the back have been common.

(*b*) The temperature has usually risen rapidly, but there has rarely been a true hyperpyrexia. Where this has occurred it has usually been within the first few days and, I think, was due to true influenza. But in certain fatal cases the temperature fell about the fourth or fifth day, and rose again about the fifth or sixth day, presenting a very different curve. I consider that in such cases the first curve was true influenza arising after a short period of incubation, and that the second curve arose after a longer incubation and was due to an unknown factor.

(*c*) The pulse rises with the fever, but during the curve of the second stage there is a very definite rise in blood pressure, and the pulse is hard and bounding.

(*d*) Following upon the rise in blood pressure there is frequently a short explosive cough when gelatinous masses of mucus, and sometimes clots of blood, are forcibly ejected. In one case there was an actual rupture of a blood-vessel attended with profuse hæmorrhage.

(*e*) The delirium comes on about the third night, and is not severe at first; the patient can be roused into a lucid interval; but after about 48 hours the delirium is much more severe, and lucid intervals are rarer. Eventually it is of a violent character and there is difficulty in keeping the patients in bed.

(*f*) In the cases which went on to a fatal termination there has usually been an entire absence of any definite pathological symptom in the lungs until crackling sounds are heard. This symptom usually comes on very late in the illness, and foreshadows death. The sound is very peculiar, and is such as one might expect if the lungs had been removed and the thorax packed with dry, crushed paper. But even after this crackling has been manifested for some time there is little or no alteration in the percussion note.

(*g*) The last symptom is one of the most serious import—namely, the blackening of the nails and the dusky hue of the face. This has been commonly the forerunner of death, and is so characteristic that the public have taken notice of it.

Post-mortem Examinations.

I regret that I have not had the opportunity of seeing as many post-mortem examinations as I could have wished, and I am much indebted to my friend Mr. C. Ward, the district surgeon, for assisting me in making examinations of my own cases and letting me have access to all that he could. In view of the preceding crackling sounds one was led to expect great changes in the lungs, but there is little actually to be found. Usually there is some excess of pleural and pericardial fluid; the lungs are deeply engorged and, when cut across, a dark fluid of the consistence of glycerine exudes. There is no pneumonia, either lobar or bronchial; the lungs are quite buoyant and float in water. In my opinion the fatal issue, so far as the lungs are concerned, is due to a thrombosis of the whole of the pulmonary vessels. The vessels of the meninges are also congested and we have taken long thrombi from them. Of the abdominal organs the liver and kidneys are usually very deeply congested, but the spleen is not usually enlarged although it may be soft and friable.

Bacteriological Investigation.

I did not attempt a thorough investigation since I had no laboratory to work in and did not really have the time to spare, but I shall state briefly such observations as I was able to make.

Examination of the scanty sputa of the delirious cases showed, in somes cases, the presence of bacilli of the plague type, but not absolutely typical. The bi-polar staining was not so clearly nor so sharply defined as in plague. An injection of a few drops of such a sputum into the subcutaneous tissue of a guinea-pig was followed by its death in six days, but it did not show any illness until the day previous to its death. An examination of its spleen showed the presence of small bacilli which gave an incomplete bi-polar staining. They frequently appeared in short chains of two or three, and might easily be mistaken for streptococci at a first glance. A gelatinous membrane surrounded them. I did not make pure cultures. Subsequent to this, examination of spleen smears from fatal human cases showed the presence of similar bacilli, but it was remarkable that they were never present in great numbers and appeared to be irregularly distributed in the organ. I succeeded in obtaining pure cultures from a series of five cases. More recently several peculiar cases have been seen where there were no suspicion of any influenza and the symptoms were fever with delirium passing quickly into unconsciousness. In one of them there were peculiar nervous convulsive movements of the arms. At the post-mortem of this case we found the lungs quite normal; the spleen was not at all enlarged and was unfortunately not examined. On opening the skull there was found a small patch of grey exudate of a somewhat dry granular character, a smear of which was negative. The ventricles were distended with fluid. I opened the left ventricle of the brain aseptically and spread an ö-eful of the fluid over a sloped agar tube. Eight pure colonies of the same bacillus, that I had already isolated from the spleens, were found.

In smears of the spleen containing this bacillus one finds many oval bodies showing bi-polar staining, having a strong similarity to the bacilli of bubonic plague. In size they vary from 1·0 micron to 1·75 micron in length and 0·5 to 0·75 micron in breadth. But one also finds somewhat amorphous bodies (these occurred largely in the first spleen I examined, but I failed to identify them as being organismal). These are but an exaggerated example of those found in bubonic plague.

Inoculation of this culture subcutaneously into a guinea-pig was followed by death six days later. There was a considerable amount of a greyish hæmorrhagic œdema at the site of the injection, a smear was found to be crowded with the characteristic bacilli and ovoid forms. The peritoneum was practically devoid of fluid. The liver was much congested, but the spleen was very little, if at all, enlarged and was of a ruby colour. Intra-peritoneal injection into a guinea-pig was followed by death in 48 hours. The peritoneal fluid was swarming with the bacilli, of which

[10] Its use at all in milk is, of course, now illegal in this country.

some had formed rather longer filaments. Pure cultures were obtained directly from this fluid. There was a remarkable pleuritis consisting of the greyish exudate which, however, was not at all like pus. This material was filled with the bacilli, a smear of which might almost be mistaken for a smear of a bubonic plague spleen.

The bacillus grows rapidly in bouillon and possesses a very disagreeable odour. (Patients in an advanced state of the disease also have a very peculiar odour which is difficult to describe, but to my mind is sour and musty.) On agar it does not form a very characteristic growth and it is interesting to note that different samples show slight differences. The first culture was obtained under difficulties and was incubated for some time at a higher heat than I wanted. It shows a free, sticky, greyish-white growth. After passing through the peritoneum of a guinea-pig the culture was undoubtedly changed, in that the glutinous character was much less evident, although the morphology was still the same.

I have made a series of attempts to isolate the bacillus from the blood during life, but have never succeeded. In the case of the bacilli obtained from the left ventricle of the brain the fluid was drawn within three-quarters of an hour after the death of the patient.

I should mention that the guinea-pig inoculated intraperitoneally showed violent convulsive movements of the body for some hours previous to its death. The others inoculated subcutaneously showed no such movements, but passed into a lethargic condition ending in death.

One cannot say that the bacillus which has been isolated is actually the cause of the disease, although the fact of finding it so often and the results obtained by inoculation are certainly very suggestive. If it is the cause it is worthy of note that the virulence very soon disappears in artificial cultures.

It is one of the most pleomorphic organisms which I have ever had to deal with, following very much the line of bubonic plague bacilli. When grown in bouillon for six hours, examination after staining with carbol-methylene blue shows bacilli with rounded ends clearly giving a bi-polar staining. On agar the growth is that of bacilli mostly, and after a few days' growth there is great evidence of degeneration of the bacilli. One finds many of them with ends looking as if irregularly broken off. I have never seen such a peculiar condition before in any bacillus with which I have had to deal. The growth on agar is at first fairly profuse, but if removed from the incubator and allowed to grow at the ordinary room temperature one finds a secondary growth taking place. This is much thinner than the original, and projects away from the main growth in a thin plate made up of irregular striæ running out at right angles to the growth and granular in appearance.

It is extremely interesting to note that the spleen must carry much more bacilli than microscopical examination would make one expect. On the examination of one spleen I had difficulty in seeing bacilli and had to search numerous fields to find sufficient to justify an assertion that they were actually there; but on touching the spleen pulp with an öse and rubbing this over a sloped agar tube I obtained a nearly confluent growth. I had the pleasure of demonstrating this spleen smear and the tube of colonies to the Influenza Epidemic Commission on their visit to this hospital.

I have satisfied myself that the malady is a definite infective disease of high virulence. Indeed, in my opinion, it has probably accounted for the most of the death-rate of the so-called influenza in this province. I cannot, however, suggest the manner of its spread. I have not seen a case arising from direct infection; although a heavy percentage of the nurses went down it was from simple uncomplicated influenza from which they all recovered. The cases can be diagnosed very soon after admission, in some cases, especially if there are no lung symptoms and the temperature is not over 104°, and if the nervous condition is well marked. Cases in which a moderately high temperature remains high for 48 hours without lung symptoms are to be regarded with suspicion. The third type, which is not so common in the present epidemic as it was last October, is that in which the patient is admitted with a rising temperature which forms a curve extending over about five days, drops to nearly or quite normal, and is then followed by a sharp rise and remains high.

Treatment.

As regards treatment, so far as my experience goes, nothing seems of great avail. Recently we have been attempting to treat the delirium as early as possible with sedatives. Of these ammonium bromide is peculiarly beneficial. Under a dosage of 10 gr. per hour the delirium is somewhat abated and the pulse softens, but where it is insufficient paraldehyde, chloralamine, or hyoscine may be used. I venture to suggest that morphia is contra-indicated as tending rapidly to permit pulmonary œdema, which is the forerunner of a fatal issue. This treatment has undoubtedly the result of delaying the fatal issue for several days. In such cases one is able to note the enormously increased reflexes. These are so well marked that it is almost impossible to take the pulse at the wrist.

The disease would seem to be one affecting the cerebro-spinal nervous system, and to be more irritative than inflammatory. Pulmonary and other conditions which may supervene might be regarded only as complications, arising from the disorganisation of the nervous system.

INFLUENZAL BRONCHO-PNEUMONIA AND PNEUMONIA TREATED WITH THE ARMY MIXED VACCINE.

FEBRUARY TO MAY, 1919.

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AND
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BEFORE dealing with our experience of the vaccine treatment of influenzal pneumonias, we will first give the number of cases of influenza (3432 in all) and the death-rate, in the three waves, so far as this hospital was concerned: May to August, 1918, admitted 1809 cases with 10 deaths; September to December, 1918, admitted 1131 cases with 38 deaths; January to May, 1919, admitted 492 cases with 14 deaths. In the first two periods no vaccine was used.

The accompanying series of eight charts are taken from 35 similar charts, carefully recorded, of cases of broncho-pneumonia and pneumonia treated by vaccine here.

Clinical Notes of Eight Cases.

CASE 1.—The main features of this case were the marked cyanosis and prostration of the patient. Râles were heard all over both lower lobes, and the sputum was red-brown. Four injections were given in all, the dose increasing by m. i. from m. iii. to m. vi., and the patient made a rapid recovery.

CASE 2.—Râles with a similar distribution were heard in this patient; the sputum was copious and red for five days. One injection, m. iv., was given.

CASE 3.—This patient was cyanosed and had herpes on lips, besides râles in both lower lobes and red-brown sputum. Two injections, m. iii. and m. iv., were given, and he made a rapid recovery.

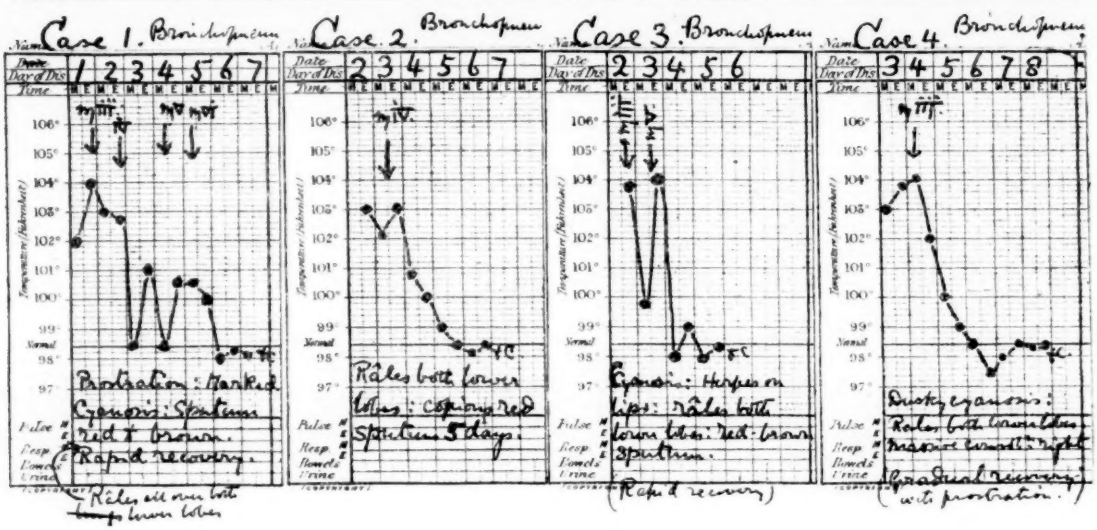
CASE 4.—In this case there was massive consolidation in the right lung, as well as râles in both lower lobes; the patient was cyanosed; he made a gradual recovery, with prostration. One injection only, m. iii., was given.

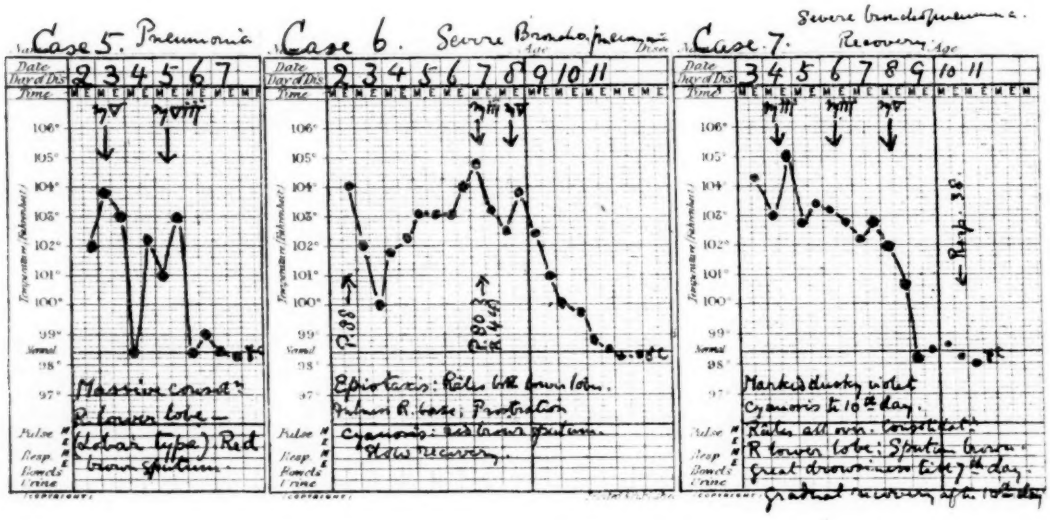
CASE 5.—This was a case of pneumonia of the lobar type, with red-brown sputum and massive consolidation in the right lower lobe. Two injections, m. v. and m. viii., were given on the third and the fifth days of illness.

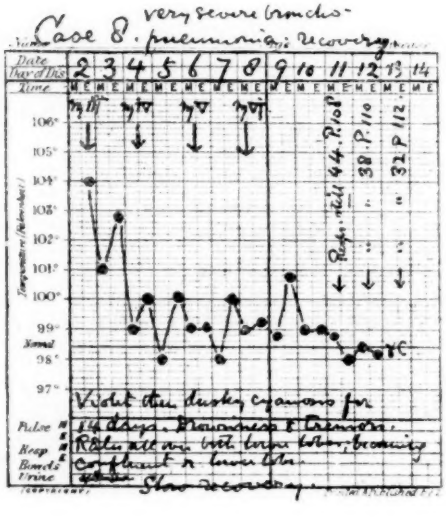
CASE 6.—Epistaxis was a feature of this case, which was of the broncho-pneumonic type. An injection of m. iii. was given on the seventh day, when the temperature rose to 104·8° F., pulse 80, respirations 44, and m. v. on the following day. The right base was dull, and the patient showed the same conditions as to râles in lower lobes, prostration, cyanosis, and red-brown sputum as the other cases; he made a slow recovery.

CASE 7.—In this case there was marked dusky violet cyanosis to the tenth day, and also consolidation of the red lower lobe. Râles were heard all over the chest, and the sputum was brown. The patient showed marked drowsiness till the seventh day, and recovered gradually after the tenth day. Two injections of m. iii. and one of m. v. were given in all.

CASE 8.—This was a case of very severe broncho-pneumonia with slow recovery. Four injections were given, as in Case 1. The cyanosis, violet at first, dusky later, lasted for 14 days; the patient was drowsy and had tremors. There were râles over both lower lobes. On the eleventh day of illness the respirations were still 44, pulse 108, though the temperature was normal.


Case 1. Bronchopneum
Case 2. Bronchopneum
Case 3. Bronchopneum
Case 4. Bronchopneum
Prostration: Marked
Cyanosis: Sputum red & brown.
Rapid recovery.
Râles all over both lower lobes
Râles both lower lobes: Copious red sputum 5 days.
Cyanosis: Herpes on lips: Râles both lower lobes: red-brown sputum.
(Rapid recovery)
Dusky cyanosis: Râles both lower lobes: Massive consolidation right
(Gradual recovery with prostration.)


Case 5. Pneumonia
Case 6. Severe Broncho-pneumonia
Case 7. Severe bronchopneumonia. Recovery
Massive consol: R lower lobe — (lobar type) Red brown sputum.
Epistaxis: Râles both lower lobes. Infarct R. base; Prostration
Cyanosis: red brown sputum. Slow recovery.
Marked dusky violet Cyanosis to 10th day.
Râles all over: consolid: R lower lobe: Sputum brown
great drowsiness till 7th day.
Gradual recovery after 10th day


Case 8. very severe bronchopneumonia; recovery
Violet then dusky cyanosis for 14 days. Drowsiness & Tremors.
Râles all over both lower lobes; bronchial
confluent in lower lobes
Slow recovery.

The vaccine was only administered in severe cases with definite lung signs—actually in 35 cases out of a total of 236 cases of influenza in our wards. In the remaining 201 cases, uncomplicated, or with mild or moderate respiratory symptoms, it was not given, as these cleared up readily with ordinary treatment, the temperature falling more or less abruptly within 48 hours in most cases, and so making the use of vaccine, in our opinion, unnecessary and fallacious.

Importance of Early Bed and Nursing.

In our experience, in all the three waves the bad cases nearly all had definite cyanosis and lung signs on admission, and it was quite unusual for a case uncomplicated on admission to develop pneumonia afterwards. This appears to bear out the generally accepted rule of the importance of bed and nursing as early as possible, as many of the bad cases—energetic young non-commissioned officers—had been struggling on at their work for a day or two.

Thirty of our 35 cases had definite signs of broncho-pneumonia, some developing complete consolidation of one lower lobe, and 5 had bronchitis without pneumonia. Nearly all the broncho-pneumonia cases were of the very severe type so fatal last October, with dusky cyanosis, marked prostration, red and brown sputum, and restlessness. The large number of such cases seen by us in October impressed us with the futility of ordinary methods of treatment. Out of the 35 cases there were three deaths; one had only one

small and late dose and had marked mitral stenosis; the second and third appeared overwhelmed by the infection on admission; one had much hæmorrhage from the lung, the other malarial debility of long standing. Each of these had two small doses of vaccine, but died in a few days, without favourable response.

During the same period there were 256 other cases of influenza admitted here, not treated by vaccine, amongst whom there were recorded 11 deaths from broncho-pneumonia; unfortunately, the actual number of pneumonia cases in this non-vaccine series is not now available, though we are certain that the number was not greater than in our series.

Improvement after Vaccine Treatment.

Whether or not the accompanying charts may be considered to prove anything in themselves the writers are convinced of the improvement in general condition, in character of the sputum, and feeling of well-being of the patients that followed the injections in the majority of the cases.

Examination of sputa showed mostly Gram + diplococci, frequently in chains, resembling Fränkel's pneumococcus, and sometimes also streptococci in long and short chains; in some cases streptococci alone or with small Gram – cocci were found; and in others small bacilli resembling Pfeiffer's occurred with the other organisms.

In conclusion, we might state that 30 of the 35 cases were placed on the "danger list," and in view of our experience of last autumn, with their dusky colour and cyanosis, we should have expected a much larger mortality. In both epidemics a remarkable feature was the slow pulse-rate, frequently of 90 to 106, with respirations of 36 to 46 in the severe cases.

The vaccine used throughout was the official army formula:—

30 m″ *B. Influenzæ*
100 m″ pneumococci } in 9 minims.
40 m″ streptococci

Dosage used was at first m. iii. (and later m. v.) for the first dose; m. v. (and later m. viii.) for the second. No bad effects were observed, condition being unaffected in the few cases where it was not improved. Probably from over-caution the dosage employed was too small.

We are indebted to Lieutenant-Colonel J. B. Byles, R.A.M.C., for permission to publish this paper.

HYPERTHYROIDISM IN INFLUENZA.

BY A. T. TODD, O.B.E., M.B. EDIN.,
MAJOR, R.A.M.C., 42ND CASUALTY CLEARING STATION.

AMONGST the sequelæ of the past epidemic of influenza those syndromes brought about by quantitative or qualitative alteration of secretion of the ductless glands have received very little attention. Various lesions have been suspected, notably of the adrenal gland, and methods of treatment based upon the resultant phenomena have met with a certain amount of success. The thyroid gland has received no notice, although it would appear to be involved with some frequency.

In the somewhat scanty medical literature at my disposal I can only find one reference to the thyroid gland in influenza during the last eight months.[1] The reference is brief, merely reporting that the thyroid gland is enlarged in a certain number of cases. An enlargement would be expected, whatever the disease described, for a simple enlargement of this gland was fairly common amongst the healthy soldiers of the British Expeditionary Force in France.

In this series of cases it would appear that the toxins of influenza have a predilection for the thyroid gland. This view is probably erroneous; while the epidemic was at its height time for research was strictly limited, and as signs of thyroid perversion are perhaps more obvious than those of the other glands of this group, undue attention may have been paid to them. Although search was made in life and continued post mortem in as many cases as possible, no other lesion in the endocrine group was definitely discovered, with a possible exception of the adrenal gland. In that group of cases of influenza which showed extensive lung involvement, a continuous low pulse pressure, and a high mortality rate, it was frequently found post mortem that the adrenal gland was flabby, and stained faintly after a prolonged immersion in pot. chrom. solution. Moreover, in this group of cases adrenalin was found to be of value in treatment.

In regard to case incidence of thyroid involvement exact figures cannot be given; in all, 16 cases were noted amongst roughly 1500 cases of influenza. No cases were noted before February, 1919. It may be stated here that the cases were not drawn from one area. Of these 16 cases 6 only are chosen for description, for in these the signs were marked, and in two of them von Graefe's sign was present to such a degree that, with an exposure of one second, satisfactory photographs were taken. The remaining 10 cases were slight and would probably have escaped attention if special watch had not been kept. With one exception all the cases showed varying degrees of hyperthyroidism. This exceptional case was a small French girl, Suzanne B., aged 10, who developed hypothyroidism during convalescence. Her illness ran a prolonged course, with large patches of consolidation in both lungs. Convalescence was slow, and the child was pale, listless, and obstinately constipated; the subcutaneous tissues lost their elasticity, and the hair on the outer thirds of the eyebrows was scanty. On treatment by pulv. thyroidea sicc., gr. ¼ t.d.s. and an increase to three times this dose, she made rapid progress, especially in regard to weight and growth.

Record of Cases.

The cases of hypersecretion are as follows:—

1. A. M. M., prisoner of war, admitted Feb. 1st as pneumonia on the third day of illness. Temperature 104° F. Lungs showed severe bronchitis, but no definite consolidation. On the 4th he was much better, temperature and pulse being normal. Next day his general condition was satisfactory, but there was slight exophthalmos; von Graefe's sign was positive, and the forehead remained smooth when he looked upward. Tremor was marked, pulse 84 per minute, and he was rather excited. These signs all diminished rapidly, and after five days had all disappeared.

2. M., driver R.A.S.C., admitted Feb. 1st, after two days' illness. He had the usual symptoms, and much bronchitis was noted. Temperature on admission 103° F. After 48 hours temperature and pulse became normal, and he was regarded as convalescent. On the 8th, however, exophthalmos was noted, forehead remained smooth on looking upward, von Graefe's sign marked, Mœbius absent, marked fine tremor present. Pulse-rate was now 94 per minute, and the patient was excited. He had not been allowed out of bed since admission. After three days these special symptoms abated, but the pulse-rate still remained high, and shortly afterwards he was evacuated to the base.

Case 2.

3. J. L., driver R.F.A., admitted Feb. 2nd, on the fourth day of illness. His symptoms were typical, and the only unusual feature was slight hæmoptysis. He had had previous attacks of bronchitis, and was a florid, fleshy man. On examination marked signs were found, and it was obvious that he was exceedingly ill. On the 4th he was slightly cyanosed, temperature 104·4° F., pulse 104, and there was diminished movement of the right base. On the 5th exophthalmos was noted, von Graefe's sign was marked, but forehead wrinkled slightly on looking upward. Tremor was present, but not more that would be expected in a man so ill. He steadily became worse; consolidation advanced on both sides, and there was much pleurisy. Heart failure set in and he died on the 15th. Post mortem the thyroid gland was found to be rather enlarged on both sides, and the blood-vessels around the capsule were engorged and appeared to be abnormally numerous. On section the gland was soft and deeply congested, of a rather darker shade than the spleen.

[1] THE LANCET, Jan. 4th, 1919, Abraham, Hallows, and French.

4. A. D., driver R.F.A., admitted Feb. 7th. He had been ill for a week, but felt himself improving. His temperature was normal, and except for some pharyngitis and bronchitis he showed few signs of active influenza. However, exophthalmos was present, von Graefe's sign marked, tremor present, slight wrinkling of forehead on looking upward. Pulse-rate 88. After three days the signs became less marked, although von Graefe's sign was still perceptible, and on any exertion the pulse-rate increased unduly. At this stage he was evacuated.

5. T. D., rifleman R. Brigade. Admitted March 3rd, after four days of illness. He had the usual symptoms, except that he had become short of breath one day before admission. He had had pleurisy with effusion two years previously. One brother had died of phthisis six years ago. On examination bronchitis and signs of a small collection of fluid on the right side of the chest were noted. This was explored and noted as sterile, the cell count showing chiefly polymorph cells. On the 14th there was evidence of increase of fluid, and 40 oz. were aspirated. There was no further accumulation. On the 20th signs of hyperthyroidism appeared. He was pale, forehead remained unwrinkled on looking upward, exophthalmos present, von Graefe's sign marked, Möbius not present, tremor marked, and pulse-rate now 96 per minute. There was no appreciable tumour of the thyroid. These signs disappeared slowly, and by the end of the month he was evacuated to the base as convalescent. In this case the following points favour the diagnosis of influenza in opposition to tuberculosis; there was an epidemic of influenza in this man's unit; sputum examinations were repeatedly negative for tuberculosis, until no more sputum was brought up; effusions with similar cell counts were fairly numerous amongst the other cases of influenza who gave no tuberculous history.

Case 5.

Remarks.

The time of onset of the thyroid symptoms and signs were very variable; in one it was noted on the sixth day of illness, the other extreme was the twenty-first day. In all but the one fatal case it developed during convalescence, and the onset was sudden in all cases.

The importance of the condition rests with the recognition of the minor grades; the more severe cases are obvious. The lack of a more prolonged convalescence in these cases would lead to one type of so-called irritable heart.

TWO CASES OF FOREIGN BODY IN THE ŒSOPHAGUS REQUIRING ŒSOPHAGOTOMY IN CHILDREN.

BY LIONEL COLLEDGE, M.B., F.R.C.S. ENG.,
SURGEON TO THE THROAT AND EAR DEPARTMENT, ST. GEORGE'S HOSPITAL, AND TO THE THROAT HOSPITAL, GOLDEN-SQUARE;
AND
G. A. EWART, F.R.C.S. ENG.,
ASSISTANT SURGEON TO ST. GEORGE'S HOSPITAL.

As almost every foreign body lodged in the œsophagus can be removed by endoscopic manipulation, two cases in small children in which the mechanical conditions rendered an external œsophagotomy necessary are worthy of record. It may be pointed out that this operation should never be undertaken until an attempt at removal by means of the œsophagoscope has failed, or until it has been found that removal by this method must involve laceration or perforation of the œsophageal wall. In both the cases here recorded it was found impossible, owing to the configuration of the foreign bodies, to move them either upwards or downwards by endoscopic methods. Chevalier Jackson states that the mortality of external œsophagotomy in children is as high as 42 per cent., but if care be taken not to injure the œsophagus in unsuccessful attempts at removal by endoscopy, and correct technique be employed in the operation, the mortality should fall much below this figure. There is no doubt also that in these two instances the skill and constant care of Sister Webley in the subsequent management of the cases were important factors in their recovery.

Account of Cases.

In the first case (L. Colledge) a female child, aged 2 years, had swallowed an open safety-pin, which the X rays revealed lying point upwards and to the left in the œsophagus at the level of the thoracic aperture, the ring of the pin being just below the top of the sternum. The accident had happened eight hours previous to admission. No difficulty was encountered in finding the pin, but to have pulled it upwards would only have caused the point to perforate the wall of the œsophagus and impact it still more firmly, and it was found impossible to push it downwards, as the point was securely caught in the mucous membrane. The method of Chevalier Jackson[1] consists in seizing the safety-pin by its ring with forceps whose jaws come in contact only at their tips, so that the pin can turn freely in the forceps but it cannot escape. The pin is then pushed gently down into the stomach. There is now room for the pin to turn over, and on withdrawing it the ring comes up first into the œsophagoscope. This method could not be employed as the safety-pin could not be pushed downwards. An incision was therefore made on the left side of the neck along the anterior border of the sterno-mastoid. An unusually large internal jugular vein caused some trouble, but was drawn aside, and a longitudinal incision was made as far down as possible in the œsophagus. The ring of the pin lay below the top of the sternum, so that it was necessary to draw the œsophagus up out of the chest. The pin was then seized by the ring at the lower end, and was removed by rotating it outwards round the point as an axis. It was then found that the tip of the pin had been bent out into a semicircle, which accounted for its being so firmly engaged in the œsophageal mucous membrane. The opening in the œsophagus was closed with stitches of fine catgut, and the outer part of the wound packed lightly with gauze. There was some leakage from the wound afterwards, but it was firmly healed, and the child swallowed normally at the end of five weeks. The patient remains in good health and has no stenosis of the œsophagus five years later.

In the second case (G. A. Ewart) the child, a male, aged 2 years, had swallowed on the day previous to admission part of a toy puzzle, consisting of a piece of iron with six projecting blunt spikes, all at right angles, so that a cross was formed in all three dimensions; consequently, in whatever position it lay the spikes engaged the mucous membrane, and removal through the endoscope was found to be impossible. The foreign body lay in the œsophagus just below the level of the cricoid cartilage, and measured 5/8ths of an inch across. The following day an incision was made along the anterior border of the left sterno-mastoid, and on exposing the œsophagus the foreign body was seen bulging the wall. It was easily removed through a short incision in the long axis of the œsophagus, which was closed with four interrupted fine catgut sutures. The outer part of the wound was packed with gauze and partially sutured with fishing-gut. The following day the child was fed with sterilised water and Brand's essence, about three-quarters of the fluid coming out through the wound and one-quarter passing into the stomach. By the end of three weeks the wound had completely healed. The child was able to swallow normally and had no stiffness of the neck. He remains well four years later.

Comments.

Attention may be drawn to the following points in connexion with these cases.

1. An attempt at removal by the œsophagoscope should always be undertaken first, since it is nearly always successful. Even if unsuccessful it reveals the true level of the foreign body, on which point the X rays may be misleading.

2. In the rare cases in which the mechanical problem of endoscopic removal is found to present apparently insuperable difficulties it is much safer to make a clean incision in the œsophagus than to risk its laceration or perforation of the carotid sheath by persistent manipulations in the effort to remove the foreign body by the endoscope.

3. The œsophagus, when exposed thus in the living child, is cylindrical and not a flattened band as usually seen at a necropsy.

4. By suturing the wound in the œsophagus and lightly packing the outer part the risk of spreading cellulitis of the

[1] Chevalier Jackson: Peroral Endoscopy and Laryngeal Surgery.

neck and mediastinitis is reduced to the minimum. Wounds in the œsophagus do not heal readily, and it is futile to aim at primary union, but the tissues are thus given time to recover before leakage begins. As there is certain to be some leakage, however carefully the stitching is done, the child should be fed on sterilised liquids, avoiding milk.

5. A clean vertical incision in the œsophagus does not lead to subsequent stenosis. The first child is in good health and swallows normally five years after the operation, and the second remains perfectly well four years later.

A TECHNICAL NOTE ON HYPERTONIC SALT SOLUTION IN THE TREATMENT OF TUBERCULOUS ABSCESS.

BY CAPTAIN LUIGI DURANTE,

FELLOW OF THE MAYO'S CLINIC; ASSOCIATE PROFESSOR OF SURGICAL PATHOLOGY, GENOA UNIVERSITY.

FROM March to October, 1919, I received in my surgical section 245 soldiers, for the most part prisoners returned from Austria and affected by surgical tuberculous lesions. Counting lesions in different bones and joints of the same patient, I have had the care of over 500 tuberculous abscesses. By the use of intrafocal injections of hypertonic salt solution I have been able to accelerate the slow natural cicatricial process so as to reduce to a few months the healing period which, with common iodic injections, would normally extend over a year. To illustrate the exact value of the treatment used by me, I think it might prove useful to refer briefly to the fundamental biological and physical properties of salt solutions.

It is well known, by Arrhenius's laws, that two salt solutions of different molecular concentrations separated by a semi-permeable membrane—as we roughly imagine the structure of living tissue—will not be in equilibrium until the two solutions contain in the same volume of water the same number of molecules. The changes that take place before the solutions become isotonic are twofold—that is to say, a part of the solution diffuses itself from the point where the molecular concentration is greatest towards the part where it is least, and at the same time there is established a reverse passage from the point where the concentration is least to where it is greatest. These physical phenomena take place in biology each time a saline hypertonic solution is injected into an abscess cavity.

Wright has demonstrated that the drainage of lymph taking place every time we inject hypertonic salt solutions into an abscess cavity acts in different ways at different times—that is, in the first two hours there is a lymphagogic action and later a lymphocytagogic action. Thus these two elements, undoubtedly the most active that we know in the antitoxic and antibacterial fight, are both brought into action.

To obtain a lymphatic current in the abscess cavity from the circumfocal area I now use, after careful research, a sterilised hypertonic salt solution composed of—

Magnesium chloride	2½ g.
Distilled water	100 c.cm.
Commercial formalin	½ ,,

The reason for choosing magnesium chloride is that this salt has a stimulating action in the process of reconstruction of the tissues, as has been demonstrated by Rosenblith and Delbet.

In practice the treatment of tuberculous abscess with hypertonic salt solutions is carried out in the same way and on the same indications as treatment with iodic solutions; but the abscess cavity should be emptied, washed out, and filled with salt solutions every four days. This frequency of treatment is called for by the fact that the quantity of lymph collected in the abscess cavity by osmotic pressure is great and produces a slight distension of the tissues, and that this distension, united with active hyperæmia, causes a feeling of pain.

The quantity of liquid that I leave in the cavity varies from 10 to 40 c.cm., according to (1) the capacity of the cavity, and (2) the greater or lesser degree of vascular action, which varies with the individual.

References.—Delbet, P.: Action Cytophylactique du Chlorure de Magnesium, Journal de Chirurgie, 1915, No. 6, 652, 653. Rosenblith: Therapeutic Effect of Magnesium Chloride, THE LANCET, 1915, ii., 941. Wright, A. E.: Physical and Physiological Action of Hypertonic Salt Solutions, THE LANCET, 1915, ii., 967, 1016.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section was held on Oct. 9th, Mr. J. D. MALCOLM, the President, being in the chair.

Indirect Traumatic Rupture of the Uterus during Pregnancy.

Mr. GORDON LEY read a paper on a case of indirect traumatic rupture of the uterus during pregnancy, a very rare condition of which he could only find nine previously recorded cases.

The patient, aged 22, was a primigravida 21 weeks pregnant, and had been in excellent health. When standing on a railway platform she suddenly felt faint and, staggering forwards, fell off the platform on to the metals. She fell doubled up in a crouching attitude. She was picked up, and after regaining consciousness was carried to a cab and taken home, where, having walked upstairs, she was put to bed. When Dr. R. Thorne Thorne saw her at noon, one hour after the accident, the temperature was 97·6° F. and the pulse 76. She was pale and suffering from nervous shock. She complained of pain in the hypogastrium; the lower lip was cut and the right shoulder bruised. An abdominal examination revealed an apparently normal 20 weeks pregnancy. There was no rigidity. A catheter was passed and clear urine was drawn off. She was reassured and became more composed.

At 6 P.M. Dr. Thorne Thorne again saw the patient. She had, since 5. P.M., noticed a slight watery show, the hypogastric pain had increased and was of a stretching character. Temp. 97·6°, pulse 110. There was no alteration in the physical signs. She was given tinct. opii, m. v. From this time there was no further vaginal loss. At 9 P.M. she was seen again by her doctor. He then noticed that she had become extremely pale. The pulse was 120 and soft; the pain was still severe. The abdominal physical signs had not altered. A diagnosis of concealed accidental hæmorrhage was suggested, and he made an unsuccessful attempt to rupture the membranes by passing a sound, which appeared to come in contact with the fœtal head. The patient found the left lateral position much more comfortable, and was accordingly left in this attitude. At 9.30 P.M. she was much worse; pulse 140, feeble and soft.

Mr. Ley saw the patient about 1.30 A.M. on the next morning. She was lying on her left side and complained of continual agonising abdominal pain, made much worse by moving her. She was extremely anæmic. The pulse was feeble and uncountable, and the respirations rapid. There were air-hunger and restlessness. The abdomen was distended, rigid, and extremely tender all over. In the left lumbar region there was an undefined swelling about the size of an ostrich's egg. The uterus could not be palpated. On vaginal examination the cervix was closed and Douglas's pouch bulged slightly. He came to the conclusion that there was hæmoperitoneum, probably from rupture of the uterus, the mass in the left lumbar region being the unruptured ovum, but suggested as a second diagnosis a ruptured left kidney, with perinephric hæmatoma perforating the peritoneum.

On laparotomy he found three pints of blood in the peritoneal cavity. The ovum, unruptured, was lying free in the left kidney pouch. The uterus was contracted and showed on its anterior wall a laceration three inches long, running from the right cornu obliquely downwards and to the left, and judging by the vascularity of the wall the rupture was through the placental site. The uterus was sutured and the abdomen closed. The placenta and membranes appeared normal and the urine contained no albumin. She was given a rectal saline, and except for some pyrexia, due largely to the absorption of blood-clot, made an uninterrupted recovery.

Mr. Ley suggested that the sequence of events was as follows: (1) Trauma; (2) incomplete rupture of the uterus involving the peritoneum and the outer muscular coats; (3) complete rupture of the uterus with bleeding into the peritoneum; (4) extrusion of the ovum at about 9 P.M.

The Pre-cancerous Uterus.

In the absence through illness of Dr. F. J. MCCANN, his paper on the Pre-cancerous Uterus was read by Dr. J. S. FAIRBAIRN. Dr. McCann deplored the growing tendency to relegate the clinician to the background and to look to the

laboratory alone for a solution of the cancer problem. He maintained that no real progress would be made until the clinician could seek out and identify pre-cancerous changes in organs as definite clinical entities. He then described two cases, one in which scrapings from a curettage for "fungous endometritis" were pronounced innocent by a high pathological authority, and the patient died of uterine cancer five years after; while the other, a single woman aged 54, had a cervical polypus, declared to be innocent, removed, and died eight years later from uterine cancer with secondary hepatic deposits. Dr. McCann emphasised the necessity of the study of after-results in this connexion, as, had he not seen both women again when the growths were too advanced for operation, he would have assumed that the previous treatment had effected a complete cure.

As to the predisposing causes of uterine cancer, Dr. McCann regarded parity as the most important of these, and thence concluded that cervical injuries are factors. He considered gonorrhœal endocervititis, if persistent, to be also a predisposing factor. He suggested that as several years elapse before a hot clay pipe produces cancer of the lip, or before the traumatism of childbirth produces cervical cancer, it is during these years that it is necessary to be on the look-out for pre-cancerous changes. He proceeded to enumerate the changes before the menopause which, in his opinion, should give rise to suspicion. The list included erosions, fissures, chronic endocervicitis, and chronic hypertrophy of the cervix, and in the body fungous endometritis and chronic metritis; also the presence of intra-uterine polypi. He recommended that erosions should be excised, and that fissures, even of long standing, should be repaired; he considered that a woman approaching the most common cancer age (46 to 53), from whose cervical canal a chronic discharge continued to flow, incurred the risk of subsequent development of cancer within the cervical canal. To eradicate the disease and to prevent the development of cancer he advised the performance of a supra-vaginal amputation of the cervix, or under certain circumstances of uterine enlargement and menstrual disturbances, a pan-hysterectomy with conservation of the ovaries. In such women he also recommended supra-vaginal amputation of the cervix for chronic hypertrophy. As to uterine conditions, he suggested hysterectomy in women nearing the menopause for marked fungous endometritis, and also for chronic metritis, as many patients suffering from these conditions subsequently become the victims of malignant disease. He differentiated between fibroid and adenomatous polypi, the presence of the latter being another indication for hysterectomy if occurring in the body. After the menopause Dr. McCann advocated a still wider application of radical operative measures to any uteri showing signs of pathological activity, and concluded by stating his conviction that many lives would be saved by adopting such methods as he had indicated.

Discussion.

In the course of the discussion on Dr. McCann's paper,

Dr. A. LAPTHORN SMITH expressed his agreement with the writer of the paper in advocating drastic methods, and agreed on the importance of the following up of all cases for many years, as practised by the Mayos.

Dr. HERBERT SPENCER disagreed with Dr. McCann as to the advisability of removing erosions, which often occurred in virgins and nulliparæ, and also as to the danger of adenomatous polypi.

Mr. LEY dwelt on the importance of routine examination of curettings, as the characteristics of malignant endometrium were often not recognised by pathologists.

Dr. FAIRBAIRN found the paper suggestive but far from convincing. The author gave no proof, and apparently jumped to the conclusion, not yet established, that cancer was local in origin, and moreover, had given no evidence in support of his contention that the conditions mentioned were predisposing causes of cancer.

Dr. H. WILLIAMSON considered the paper to be of an unscientific nature. He suggested that in the only two cases quoted the connexion between the conditions at five and eight years' interval respectively was not established, and might easily have been due to coincidence. He also contended that since no serious operation is without a certain mortality more lives might be lost than gained by promiscuous hysterectomy.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS:

SEVENTH ANNUAL CONGRESS.

AFTER several years' interval due to the war the National Association for the Prevention of Tuberculosis resumed last week its annual conferences with a very successful three-day session at the Central Hall, Westminster.

On the first morning Lord GLENCONNER occupied the chair, and the opening address was given by the Minister of Health, Dr. CHRISTOPHER ADDISON.

A Welcome to Distinguished Representatives.

The Chairman cordially welcomed the distinguished guests: Dr. Linsly Williams, Professor William C. White, Dr. David Lyman, and Dr. C. J. Hatfield (U.S.A.); Professors Léon Bernard and Rist (Paris); and Professor Denys (Louvain). He expressed great regret at the absence, through illness, of Sir William Osler. Professors Calmette (Paris), Poli and Rasponi (Italy), whose names appeared on the agenda, had found it impossible to attend. The Chairman alluded to the notable increased incidence of tuberculosis in the Navy and Army since the commencement of the war, and urged the undertaking of increased educative propaganda work among the people. He referred in terms of cordial welcome to the coöperation of the British Red Cross Society with the Association, from which there was every reason to be hopeful concerning the future.

Address by the Minister of Health.

Dr. ADDISON began his address with a few words of welcome to the distinguished strangers from all lands. He assured the conference that it would receive from him and from the Ministry the best help they could give. The war had certainly made the difficulties of this and other work greater than they were before. It had added from the ranks of those who had served with the forces to the number of tuberculous patients. He was sorry that, in consequence of the necessary suspension of many of our activities, with the absence of many skilled men from the tuberculosis service in the ranks of the Army Medical Corps, and from the entrance of a large number of women into industrial service, there had been an increase in tuberculosis in some directions, notably among women. It was one of the functions of the Ministry of Health to try to secure that their efforts to deal with these great problems were not disjointed and fragmentary. As he had so often said, we had suffered in this country a great deal from failing to have a considered body of policy, and that applied with singular aptness to tuberculosis. We were apt to deal with these matters piecemeal—necessarily so sometimes. One of the chief purposes of such conferences as this was to help in arriving, in the light of what knowledge we had, at a considered body of policy. Whatever policy was formulated to deal with tuberculosis, it would need a long time and a considerable body of people to carry it out. Hence in these great matters it was useless to be impatient. It was partly with the object of insisting on one of these prime factors that he asked Sir George Newman to prepare a memorandum on the scope of prevention in medicine, and that had been issued within the last day or two.[1] Unless, hand-in-hand with the remedial measures which might be initiated or prosecuted, operations were conducted with a view to the prevention of the disease, money would be poured out largely in vain. Hence he laid very great stress on educational propaganda dealing with the social policies of a preventive type.

Re-housing and Clearance of Slums.

Among these he unhesitatingly placed improved housing. Not only with regard to tuberculosis, but also many other ailments, unless a big programme of re-housing and the clearance of slums were carried out, combative efforts would be largely in vain. That was why the first action of the Ministry of Health was to promote a Housing Act. In this campaign they would need the best, the most considered, the most intelligent efforts of the public and of the interests concerned. It would need a great deal of money; the cost of housing was prodigious; the cost of providing sanatoriums,

[1] THE LANCET, Oct. 18th, p. 695.

dispensaries, and village settlements had been more than doubled, and in these times, when our national efforts must necessarily be directed towards reducing our gigantic expenditure, it enhanced the difficulties of all who recognised that, unless we were prepared to incur capital expenditure in fighting these plagues, money would be spent in vain. And the task sometimes made those responsible for it very unpopular, laying them open to all manner of accusations. His own view was that the millions of money now being spent in our manifold health services were largely wasted, because we had never had the foresight and the courage to tackle the capital expenditure necessary to remove the causes of disease.

Education of the Public.

Education and enlightenment he placed only second in importance to housing. Whilst we had millions of people who never opened their bedroom windows, or were content to have a window which would not open, the efforts of health workers would be very largely stultified. The information for the public which he had in mind need not be of a highly professional kind, couched in technical phraseology, nor clothed in a pedantic vesture; it needed to be sound knowledge and good common sense. This was apt to be lost sight of, workers concentrating on relatively showy performances. His Ministry was not likely to lose sight of these principal essentials.

Research Work.

The foregoing—housing and the spread of information—naturally went hand-in-hand with research. He recently had had given to him a paper prepared by Sir Walter Fletcher, the secretary of the Medical Research Committee, and he asked Sir Walter Fletcher to put down, as far as he could, in the vulgar language of money, what had been the benefits of the work of the Research Committee during the war. Sir Walter Fletcher provided him with six illustrations, and it was quite possible in each of them to assess, in terms of money saved, the results of the researches initiated by the Committee. In each of them the money saved was more than the total expenditure on the Committee since the first day of its formation. When he was at the Ministry of Munitions vast sums of money had to be spent every week, as compensation and in other ways, in connexion with T.N.T. poisoning, which at one time was very widespread in our factories. The research carried on into the matter resulted in practically getting rid of the disease in every factory. The saving effected by the few thousands of pounds spent in research, properly carried out under responsible direction, was one of the things which the nation must be prepared for, and the expenditure on this would be trifling compared to the gain which would arise. That was the case in relation to tubercle. We had been short, and in some directions were still short, of staff and accommodation, and the war had shown that a good deal of the expenditure on sanatoriums might be fruitless unless the arrangements were supplemented by others. In many cases it was of no use to send a man to a sanatorium if, on emerging, he returned to an insanitary home.

Industrial Training and Village Settlements.

Again, the monotony and dreariness of long life in a sanatorium was a human factor of great importance. It was clear that many men who had been in sanatoriums ought never to return to their former occupation. Therefore the Committee under Sir Montague Barlow had pointed out, in its valuable report,[2] the necessity of proper arrangements for securing facilities for industrial training, linked to the sanatorium system; and the Ministry of Health were now, in conjunction with the Ministry of Pensions, arranging for the provision of a thousand training places in connexion with sanatoriums. There would have to be linked with this some system of settlement, perhaps akin to what obtained at Papworth, or the colony system, so that the men would be able to earn a living afterwards in healthy surroundings and as ordinary citizens. Any attempt to have a sort of tuberculosis colony was doomed to failure. A person who had had tuberculosis was much the same as one who had had the mumps; he liked to live among his fellow-citizens and be one of them, not as one who was marked out. Some of the representations which had come to him seemed to lose sight of that very necessary but ordinary consideration. But village settlement centres, bearing in mind what he had just said, had got to be provided. He was not yet in a position to state what financial provision would have to be made arising out of Sir Montague Barlow's report, but materially increased contributions would have to be made. One thing was certain: he would not be a party to branding the tuberculous person as a leper.

[2] THE LANCET, Sept. 6th, p. 451.

Increased Grants for Health Visitors.

These matters raised the question of after-care, the examination of contacts, and the facilities for that kind of work. It was with that in view that the Ministry were providing increased grants for the training of health visitors and nurses; this was necessary if the disease was to be attacked in its early stages. Facilities for early diagnosis and for consultation in connexion with early cases was one of the most important parts of the work which lay before them. In some places there were abundant facilities for diagnosis, but in a vast number of others there were very few or none at all. The whole of the organisation of these health services was now committed to the Medical Advisory Council, with others who had been called into being under the Ministry of Health, and he would not announce proposals until the best available advice had been received, and every consideration had been devoted to it. These matters must be on a sufficiently elastic plan, not dealt with—as had hitherto been too much the case—as odds and ends. The provision of laboratory facilities and so forth could not be considered purely in terms of tuberculosis. He hoped he had said enough to show that the Ministry of Health was prepared to face its bigger responsibilities in a courageous and, he hoped, a sensible spirit, and he looked to this Association and kindred bodies to give continual assistance. And if at any time the Ministry could render help it would be for such bodies to command.

Dr. Addison was cordially thanked for his address.

Address by Sir Robert Philip.

Sir ROBERT PHILIP (Vice-chairman of the Council of the National Association for the Prevention of Tuberculosis) delivered an introductory exposition of the Association's activities. He said the line between prevention and treatment had become thinner and thinner, but in the case of tuberculosis it had disappeared. The eradication of tuberculosis meant placing health on a higher plane all round; hence every suitable weapon should be used. The war had enabled a register to be compiled of the amount of tuberculosis in our adolescent and adult male population, and this would enable the Ministry of Health to provide accordingly in its schemes. He hoped great things from the alliance of the Red Cross Society and the activities of the League of Red Cross Societies, the foundation of which was due to the initiative of Mr. H. P. Davidson, of the American Red Cross Society.

Uniform Tuberculosis Schemes.

Dr. JOHN ROBERTSON (Birmingham) said he had noted a tendency to concentrate on treatment rather than on prevention, yet the results from the latter were far better than those following treatment of the established disease. He did not think results had been achieved commensurate with the huge sums of money which had been expended. Divided authority had been responsible for much friction and inefficiency, and the establishment of the Ministry of Health was most welcome as the commencement of a better order of things. The increased prevalence of tuberculosis was not due, he thought, to new infections, but mostly to a resurgence of old cases. There should be a more uniform standard of treatment throughout the country, and he would like to see a central tuberculosis department for the purpose of universally distributing the most valuable information available on the subject. He hoped all Poor-law cases would be handed over to the local authority to be dealt with. Cases of successful arrest of the disease went unrecorded, whereas a case advancing to death "stood on the doorstep." Local Insurance Committees were continually troubled with advanced cases, while successful ones passed unobserved. Sanatoriums were not yet being properly used. His experience had been that from 50 to 60 per cent. of the cases diagnosed as pulmonary tuberculosis by competent physicians recovered sufficiently to require no attention, and disappeared from the register. He considered that more attention should be devoted to tuberculosis as manifested in the lower animals.

He regarded the statement that bad housing was the main cause of our tuberculosis as quite unfounded. In support of his idea was the fact that though women were practically always in the home, they suffered less from the disease than did men.

Dr. LYMAN (U.S.A.) expressed his lively satisfaction that Americans found themselves working shoulder-to-shoulder with the British in the great battles of peace and reconstruction which lay ahead. In the States, so far, there was no Ministry of Health: in many health matters each State was a law unto itself; it was only in regard to port sanitation and national aspects that a uniform policy obtained. Attention should be given not merely to living conditions, but to what might be termed in regard to many, their "loafing conditions"—how they spent their time when they were not at work. There was need of a central organisation in this work, which should prevent overlapping and keep workers advised as to what was being done.

Local Authorities and Insurance Committees.

Dr. F. N. KAY MENZIES said that owing to the suspension of building operations during the war, and the present greatly enhanced cost of labour and materials, the expense of erecting necessary institutions had gone up by leaps and bounds. An instance was that of a sanatorium of 180 beds projected in 1914 which it was estimated then would cost £40,000, but which to-day would cost £133,000 to build. Bearing in mind the great demand for dwellings, he thought the question should be faced whether there was real necessity for a complete tuberculosis scheme, such as that suggested at the Cannes Conference. He hoped a reply to this would come from this conference. He drew attention to the unsatisfactory position of the tuberculosis officer. It had been the fashion for many medical officers of health to give as little encouragement as possible to the tuberculosis officers; some had even forbidden the latter to enter the homes of the patients. If proper value was to be got from the dispensaries this attitude of mind must speedily disappear. The outlook of the tuberculosis officer must embrace everything which affected the tuberculosis problem in his area, and the medical officer of health must be his colleague and fellow-worker. Moreover, the tuberculosis officer must not limit his activities to cases of the pulmonary form of the disease. It was desirable that there should be complete harmony and coöperation between the tuberculosis officer and the medical practitioners of the area. He urged that the present unsatisfactory methods of selecting cases for sanatorium treatment should be got rid of. Patients so recommended should be submitted first to a period of careful observation in bed. After-care had been too much neglected; no field of anti-tuberculosis work more needed concentrated effort. In many cases most of the benefit of sanatorium treatment was thrown away because the patient returned to the same home and conditions of life. He thought it might be wise to make sanatorium and even hospital treatment contingent on the tuberculosis dispensary guaranteeing a sound system of after-care. Bad housing he regarded as the most important individual factor associated with the prevalence of tuberculosis.

Dr. G. LISSANT COX (Tuberculosis Officer, Lancashire County Council) exposed the defects in the present system of compulsory notification of tuberculosis. In his area during seven years 19 per cent. of the cases who died of the disease had not been notified at all, 1 per cent. occurred before the notification had been received, and 26 per cent. of the deaths occurred within three months of the notification. The unnotified cases presented a serious reservoir of uncontrolled disease, and were therefore centres of further infection.

Dr. H. HYSLOP THOMSON (County Medical Officer, Herts) advocated the formation in each area of a single public health committee, on which the various bodies concerned in this work should be represented. Too little attention had so far been given to combining preventive action with treatment.

The Action and Scope of Pensions Boards.

On Thursday afternoon the Conference considered the schemes in relation to Pensions Boards and Committees (discharged sailors and soldiers).

M. BERNARD (Paris) related the work which had been set going to deal with the disease in France, where the crusade was, at the commencement of the war, in a very backward state. He was followed by Professor RIST (also of Paris), who stated that at the end of 1915, 85,000 soldiers had been discharged from the French Army on account of real or suspected tuberculosis. It was subsequently found that these figures were very faulty, for many of the men so discharged were in good health and had been engaged in arduous work ever since.

Dr. HATFIELD (U.S.A.) spoke of the problem as it was met with in America.

Dr. R. CUNYNGHAM BROWN, representing the Ministry of Pensions, said that since the establishment of the Boards in May, 1918, there had been 427,949 examinations made up to the end of September last. The Boards had to consider attributability and to assess the degree of disablement. Recommendations for treatment were no longer made by these Boards, but by the tuberculosis officers appointed as members of the Boards. On the question of attributability, instructions had been drawn up by the Ministry of Pensions, under the advice of the various committees, to the effect that no time-limit should be fixed, either for admitting or excluding attributability, in the case of tuberculosis. He thought the organisation permitted of a greater degree of joint action and allowed more coöperation between the officials in the various regions and those at the Ministry of Health.

Mrs. SHAKESPEAR, D.Sc. (Birmingham War Pensions Committee), said the treatment of men who had acquired tuberculosis in war service was at last on a generous scale. But many were unwilling to enter a sanatorium, and some left for home before the full term therein. 20 per cent. of 500 cases dealt with in Birmingham came under one of those two headings. The tedium of sanatorium residence was to be met by combining training with treatment, as was being done in some orthopædic hospitals; this was doubly necessary when the patient's occupation had been unsuitable. Attached to each sanatorium there should be an employment committee to assist patients concerning their future. Return to industry should be gradual. She thought sanatorium accommodation should be increased, so that each patient should have as long a period of treatment as his case required, the men receiving full disability pension for such time as they remained under the supervision of the committee.

Mr. E. B. TURNER spoke of the part in the campaign taken by the general practitioner, whose support and hearty coöperation were an absolute necessity for the success of this crusade. It was surely the regular medical attendant who was most likely to detect any serious and menacing departure from usual health, and that attendant should be well equipped for his work. Despite the pressure in industrial practice, and the amount of contract work, the practitioner should endeavour to visit every case in which he suspected tuberculous mischief. He placed great stress on the "clinical sense," which often detected danger before laboratory tests gave any positive indication of disease. And the general practitioner must take a large share in the domiciliary treatment of cases of this disease. Moreover, it was his duty to preach health at every possible opportunity.

The Red Cross and other Voluntary Activities.

At the Friday morning session the chair was occupied by the Hon. Sir ARTHUR STANLEY, chairman of the Joint War Committee of the British Red Cross Society and Order of St. John, and the subject was the various voluntary activities in the campaign.

The CHAIRMAN spoke of the desire of the V.A.D.'s in all parts of the country to have their services utilised now that the war was over, and said it would be a pity if the energies of so devoted a band could not be used for peaceful purposes. Of the three obvious channels, venereal disease, cancer, and tuberculosis, the last-named was well fitted for them. He had always hoped it would be possible to form a definite organisation to secure for every man, woman, and child in this country just that amount of skilled attention which was necessary in the early stages of any accident or any disease, and so work on to the next stage—treatment in a great hospital. A great step could be now taken towards realising that ideal by the use of the motor ambulances which did such fine work in the war, for the civilian who had broken his leg required an ambulance just as much as did a soldier who sustained the same accident in battle. It had been determined to map out the country in such a way that no town or village should be more than 15 miles (a ¾-hour run) from an ambulance station. And in many villages there was a trained nurse or V.A.D., who could give first aid in minor accidents. In

regard to tuberculosis V.A.D.'s could be taught the preliminary symptoms, that stage at which the disease was curable, and could urge that medical attention should be secured. They could also do something towards persuading established cases of the danger of remaining in their own homes, and could visit the families at frequent intervals. No State institution could so well compete with a difficulty like that. He concluded by a reference to the formation of the International League of Red Cross Societies, on the initiative of Mr. H. P. Davison, of the American Red Cross Society. There was great danger in the summer of an epidemic of typhus, commencing in the Balkans and spreading to the Ukraine. The League had sent out a scientific commission which had reported, and if its recommendations were carried out it would probably save Europe from a great pestilence.[3]

Countess FERRERS pointed out that the mental attitude of the visitor to homes should be one of humility and understanding sympathy, especially in view of the fact that the family were putting up a heroic but silent fight against adversity.

Dr. LINSLY WILLIAMS dealt with the voluntary work in France.

Professor WHITE (Director of the Tuberculosis League, Pittsburgh) discouraged the concentrating of effort on any one measure, such as sanatoriums. He attached considerable importance in this campaign to the health visitor; there should be all-round coördinated effort. For every population of 250,000 he considered there were required 20 visiting nurses, one dispensary, with four or more substations, a number of hospital beds equal to the mortality rate for the district, five physicians, five consultant nurses, and a sanitary administrative office. In his city there had been established a number of international scholarships on public health nursing, and in this it would be hoped Britain would join.

A general discussion followed.

The Training of Doctors and Nurses.

On Friday afternoon, under the presidency of Sir ROBERT PHILIP, the Conference discussed the training of doctors and nurses, the CHAIRMAN remarking that the time was probably not far distant when medical schools generally would follow Edinburgh in compelling all students to take a special course in tuberculosis. Those engaged in this work should know what machinery had already been set up, and how to use it, and doctors should be trained to detect the earliest manifestations of the disease.

Dr. LINSLY WILLIAMS (Rockefeller Commission, Paris) said if a doctor could not detect early tuberculosis, he should at least have intelligence enough to send the patient to someone who could. Doctors engaged in this special work should have periods of leave to keep themselves up to date by laboratory study. He spoke of the qualifications of doctors and nurses as he found them in France.

Dr. H. DE CARLE WOODCOCK (Leeds) attributed the recent increased incidence rate to the strain of the war. As attributing causes the workshops and amusements must be considered, as well as the homes. He would like to see a law forbidding any chronic case of the disease being allowed to live in a congested district.

Dr. T. GWYNNE MAITLAND said there should be some unified scheme which the practitioner or student wishing to enter this work could lay hold of. The same also applied to the nurse. There was something radically wrong in the present system. The status of tuberculosis should be, in his opinion, the same as that of public health and psychological medicine, for both of which a diploma was granted. Brompton Hospital had made a successful start; it was for the Ministry of Health to carry it forward.

Miss REDL (College of Nursing) spoke of the great need for tuberculosis work of trained nurses and nurses in training.

Professor RIST dealt with the same subject from the French side.

After-Care.

The concluding session was devoted to the consideration of after-care, under the presidency of Lord GLENCONNER, and, in the absence of three of the advertised speakers through illness, the opening address was given by the Marchioness of ABERDEEN, who described the work done in Ireland by a voluntary band of people about the year 1907, the activities having since been greatly amplified. In the years 1907 to 1914 the death-rate in Ireland from tuberculosis was reduced from 11 500 to 9000; it had always been much heavier in Ireland than in any other part of the Kingdom, but in that country there were appalling houses, scarcity of milk, and lack of proper water supplies. She made a touching appeal for help from all classes in this crusade.

Father BERNARD VAUGHAN, S.J., followed with an eloquent appeal for unselfish activity in the crusade, and alluded in passing to the ravages made by the disease, the lowered birth-rate, and the desire of many women to escape maternity. He wished it could be so arranged that there should be no case of tuberculosis without an angel guardian watching over it.

Resolutions Carried.

At the conclusion of the sitting the following resolutions were proposed by Sir ROBERT PHILIP, seconded by Lady ABERDEEN, and unanimously carried:—

(1) That it is imperative that the Government take all possible steps forthwith even if further expenditure be involved, to hasten the development throughout Great Britain and Ireland of the various elements forming the coördinated scheme of anti-tuberculosis measures recommended in the Departmental Committee's report.

(2) That a copy of the foregoing resolution be sent to the Minister of Health, the Board of Health of Scotland, and the Chief Secretary for Ireland.

The Annual General Meeting.

The twentieth annual general meeting of the association was held during the course of a conversazione at the Central Hall, Westminster, on the evening of Oct. 16th. Lord GLENCONNER took the chair shortly after 9 o'clock, when the secretary read the minutes of the last meeting. In addition to six retiring members two new members, Sir Robert Fox-Symons and Mr. H. J. Gauvain, were elected to the council. Lord Glenconner referred with feeling to the loss sustained by the association in the recent death of Dr. W. O. Meek. He welcomed Sir Arthur Stanley as chairman of the council in succession to Lord Balfour of Burleigh, who now becomes its president. The business done was formal.

Dinner given by the Tuberculosis Society.

A dinner, at which the foreign delegates to the Tuberculosis Conference were entertained, was given by the Tuberculosis Society at Claridge's Hotel on Oct. 15th, Sir ROBERT PHILIP presiding.—Dr. HALLIDAY SUTHERLAND, retiring President of the society, gave a short account of the work of the society and an outline of future aims.—Dr. LYMAN, late President of the National Association for the Study and Prevention of Tuberculosis in America, said that, benefiting by England's recruiting experiences, America had rejected 63,000 cases of tuberculosis before enlistment, and later had weeded out a further 25,000 men before drafting over to France. It was now estimated that there would not be more than 15,000 cases discharged with the disease from the American Army.—Dr. LÉON BERNARD, professor of hygiene (Paris), attributed the enormous prevalence of tuberculosis in France in great measure to the impossibility of thorough medical examination, which had resulted from the rapid mobilisation of the reserves at the first onslaught of the German Army. France was admittedly behind Britain in public health organisation, but there was a firm determination to follow in her footsteps. He hoped that the International Association for the Prevention of Tuberculosis would be reconstructed, and tendered an invitation from its president, M. Bourgeois, to a preliminary conference in Paris.—Professor RIST, of the Hôpital Laënnec, paid a tribute to the excellent work of the Rockefeller Commission, carried out successively under the direction of Dr. Livingston Farrand and Dr. Linsly Williams. Until a universal classification of terminology was adopted he doubted whether serious progress could be made.—Professor DENYS (Louvain) responded for the guests, and Professor WHITE (Pittsburgh) responded on behalf of the Italian delegates—Professor Rongoni (Milan), Professor Poli (Genoa), and Professor Rasponi (Rome), who were unable to be present.—Dr. NATHAN RAW referred to the proposals made by the Inter-departmental Committee for the treatment and training of the discharged tuberculous soldier. No country, he said, had done more in this direction than England.—Lord GLENCONNER expressed his pleasure at the coöperation among so many great allies in the campaign against tuberculosis. The aims of the future might be set down as peace, reconstruction, and research.—Dr. DE CARLE WOODCOCK spoke of the work before the society, and the CHAIRMAN expressed his conviction that the future was full of hope.

[3] See p. 748.

Reviews and Notices of Books.

I. *Essentials of Physiology.* By F. A. BAINBRIDGE, F.R.S., Professor of Physiology, University of London; and J. ACWORTH MENZIES, M.A., M.D. Edin., Professor of Physiology, University of Durham. Third edition. With 179 illustrations. 1919. Pp. 434. 12*s.* 6*d.*

II. *An Introduction to General Physiology, with Practical Exercises.* By W. M. BAYLISS, M.A., D.Sc., F.R.S. 1919. Pp. 233. 7*s.* 6*d.* London: Longmans, Green, and Co.

I. THE object, as in previous editions, has been to bring together in a concise form the fundamental facts and principles of physiology, primarily to meet the requirements of the medical student. Histological details, chemical methods, and all matter of purely historical interest are excluded. The sections dealing with the constitution of proteins, with the chemical changes accompanying muscular contractions, and the functions of the renal tubules, have been rewritten. It is surprising that we find no reference in the section on muscle to the effect of veratrin. The chapters on the nervous system and organs of sense are excellent, so far as they go, and are well illustrated. In the chapter on blood we failed to find any reference to "buffer" salts. There are but two references to "shock"—we should have welcomed a few more details as to recent work on this subject—e.g., as to the observations of Bayliss on the effects of intravascular injection of solutions of gum. Amongst "internal sensations" in the next edition we hope that space may be found for reference to the causes of the sensations associated with hunger and thirst. This is a judiciously compiled compendium of the essential facts and principles of physiology, such as every student of medicine should be thoroughly conversant with.

II. It is far more difficult to write a text-book for those commencing the study of a science than to write one for advanced students. In the first place, the author has to decide what shall be omitted. We agree with the author that students do not readily apply their knowledge of physics and chemistry to physiological problems. It is for this reason that he gives so much space to certain elementary facts on these subjects. The exposition in the text is intended to be dogmatic and concise. The book is divided into two parts. The first part (159 pages) is upon "General Physiology," the author taking a very wide view of this subject, while the second part (about 70 pages) deals with "Laboratory Work"—i.e., with experiments to illustrate the text and convince the student of the facts and principles therein stated. The teacher is advised to take the book as a suggestion of what the author regards as the fundamentally important things to be taught, and to describe them in his own words. In the first chapter (39 pages) the student is introduced in terse and pithy terms to the salient facts and theories regarding protoplasm, the cell wall and its permeability, the nucleus, surface-tension, osmosis and osmotic pressure, electrolytic dissociation, electrical resistance of living cells, the colloidal state—a subject of far-reaching and ever-increasing importance—electrical adsorption, and other cognate questions. The author admits that the subject-matter of this chapter is "undoubtedly a difficult one," and the student is recommended to refer back to it from time to time. Under food digestion and respiration (52 pages) the uses of food for growth and maintenance are first discussed, and then the supply of energy is dealt with. The description of the mechanism of oxidation in and by the tissues, always a perplexing matter for the student, is particularly good and illuminating. The chapter on work and muscle is short, and includes the newer views on the causation of muscular activity. Sixteen pages suffice for the senses, and here, again, apt illustrations from chemical phenomena are used to elucidate how light may act on the retina. The nervous system is treated broadly and briefly. The high importance of inhibition as a function of the cerebral cortex is insisted on and illustrated by many familiar examples. The short story of "conditioned" and "unconditioned" reflexes is particularly interesting, and will whet the student's appetite for further knowledge of these comparatively modern discoveries. The main principles of the circulation and transport are ably set forth and particular lucidity characterises the description of how the heart adapts itself to the demands made upon it. Eight pages are given to a general description of growth and reproduction. Some of the laboratory exercises are simple, but others are not fully described and certainly require the aid of a teacher. There are numerous references throughout the text to the author's well-known "Principles." Names of discoverers are for the most part omitted, only a few names of outstanding men of genius being introduced.

We congratulate Professor Bayliss on the result of his judicious selection of facts and principles, and on his illuminating presentation of "General Physiology" in such a readable and attractive form.

Précis d'Anacousie Vocale et de Labiologie. Méthode Orale d'Éducation Auditive, d'Initiation Phonétique et de Lecture sur les Lèvres. By G. DE PARREL. Paris: Maloine et Fils. 1919. Pp. 492. Fr.10.

M. de Parrel, whose work has just been officially rewarded, signifies that his work was compiled and published in order to meet the needs of soldiers rendered deaf during the war, either as a result of the continuous noise of bombardment, of shell shock, or of wounds. The book, however, is not limited to that purpose; on the contrary, it contains a fund of information about all classes of the deaf, from congenital deaf-mutes and those naturally hard-of-hearing to sufferers from acquired deafness of varying degrees.

The author writes in detail about phonetics, and gives the usual and correct diagrams of the positions of the organs of speech in the production of the various sounds; also several illustrations of the appearance of the face during speech, which should be very helpful and instructive in the teaching or acquiring of lip-reading. He touches on the general qualities of the voice, such as pitch, intensity, and timbre, and classifies words according to the pitch of the vowels composing them. Chapter IV. includes some interesting and exhaustive formulæ for use in the pathological examination of patients with various degrees of deafness and for the keeping of records during treatment. The general tone of the educational parts of the book will excite sympathy or antipathy according to the school of thought to which the reader belongs. Certainly many of his theories would not be favoured by modern English teachers; such, for example, as the statement concerning children who are deaf from birth that "the intellectual development of this class of patient is, generally speaking, less elastic than that of the normal child." This idea of the author tallies with the theories that the education of the deaf child should not be begun whilst the child is still in its nursery days, and that lip-reading must begin with the phonetic elements. M. de Parrel is certainly consistent throughout his plan of education. Some exercises for breathing, articulation, lip-reading, and so forth are given, but these must be regarded as serving as guides rather than being exhaustive. In the case of nasality of speech the remedy proposed is the closing of the nostrils with a specially constructed pincer. This may be useful in some cases, but generally nasality is caused by the dropping of the soft palate, which can be strengthened by suitable exercises.

The study of this work and the comparison of French and English phonetics is very interesting. English readers will find in this book an improved, modernised, and extended edition of Arnold's "Education of the Deaf."

A Laboratory Outline of Embryology: with Special Reference to the Chick and the Pig. By FRANK R. LILLIE, Professor of Embryology, and CARL R. MOORE, Instructor in Zoology in the University of Chicago. Chicago: University of Chicago Press. 1919. Pp. 66. 35 cents.

THE authors are of opinion that a course of embryology for medical students can be presented more effectively by studying the development of each organ system separately than by consideration of the entire embryo at time intervals. The printed directions require constant reference to Lillie's "Development of the Chick," and Prentiss and Arey's "Text-book of Embryology." First the morphology and gross anatomy of the chick embryo (33, 48, 72 hours, 5 days) and pig embryo (10, 15, 25 mm.) are considered, then embryonic membranes, ectodermal, endodermal, and mesodermal derivatives. The whole programme can be carried out in about 60 hours. It is an excellent little guide and represents an amount of laboratory work which we should think is rarely done by the average medical student in this country.

THE LANCET.

LONDON: SATURDAY, OCTOBER 25, 1919.

The Campaign against Typhus in Poland.

IN the chaos of affairs in Russia, famine, destitution, and civil war, together with the disappearance of ordinary government, have all combined to produce the conditions required for the wholesale propagation of typhus and relapsing fever. Enteric fever and dysentery are also seriously epidemic, while the further spread of cholera in and from Russia is far from improbable. The actual toll of life taken by these diseases, and particularly by typhus, since the Russian revolution will never be accurately known, but on all reckonings it has already been enormous, and there are no signs of its lessening during the coming winter and spring, the period in which epidemics of typhus and relapsing fever are ordinarily at their height. The spread of these epidemics from Russia westwards is a matter of very serious concern to the rest of Europe, and creates a situation which not only needs close watching, but timely and energetic action. Great credit is due to the new Government of Poland for their early recognition of this fact. Last spring that country sustained a severe outbreak of typhus, which was particularly intense in the portion which was Russian before the war, as well as in the regions of Galicia, which have formed so many battle grounds since 1914. The epidemic gave a great impulse to the newly-created Ministry of Public Health in Poland, which pushed forward in the Diet a number of well-contrived Acts for the improvement of public health and epidemic disease prevention. These Acts, based largely on British models, came promptly into operation, and considerable sums were voted for public health work.

A substantial beginning has already been made by the Ministry in the matter of organisation. Local public health authorities, roughly corresponding to our county and borough councils, have been set up; whole-time medical officers have been appointed for sanitary work; disinfecting plant and hospital equipments have been obtained from the surplus stocks of the American Army in France; good laboratories have been established at Warsaw and in other centres; and the new organisation has been particularly pressed in those parts of the country where modern sanitary measures were previously almost unknown. This applies to the more settled or "Congress Poland," but, in addition, there are large areas in the east and south where Poland has had no boundary, though she has been engaged with different forces in endeavouring to make it, and has still large armies in the field. In these regions epidemic diseases in the civil population are dealt with as part of the military rule which prevails, and the Polish army medical service, which includes many able and highly skilled men, has also done its best with the limited means at its disposal to cope with the prevalent typhus, a task in which the French army medical officers in Poland have also assisted. The Polish authorities, however, were quick to realise that, under the present conditions of the country, they could never succeed in dealing effectively with the situation unaided. Everything pointed to a recrudescence of these louse-borne diseases, as well as to other serious epidemics, in the winter and spring of 1919–20, and the lesson of Serbia is too recent to be forgotten.

A wholesale pestilence, occurring at so critical a stage of the re-creation of their nation, might well destroy much or all that their military and civil government, and the efforts of M. PADEREWSKI and his colleagues at the Peace Conference, had achieved. Encouraged by the invaluable aid they had secured from individual Red Cross agencies, particularly the American, British, and Australian Red Cross Societies, the Government appealed to the newly-created League at Geneva, which was established to coördinate the work of all Red Cross Societies, and to concentrate their efforts on the prevention and relief of suffering in cases where a large and combined international effort is called for. The Polish authorities laid special stress on the continued introduction of disease by the stream of refugees and others which continues to pour in from Russia, a population of men, women, and children requiring everything in the way of food, clothing, and maintenance, and too often bringing infection with them. The League of Red Cross Societies realised the force of the appeal and took the wise step of consulting the public health services of various Allied Governments, as well as the Office International d'Hygiène Publique, and with their concurrence sent a small International Medical Committee to Poland to size up the situation. This committee, which consisted of Colonel H. S. CUMMING, of the United States Federal Public Health Service; Dr. G. S. BUCHANAN, of the British Ministry of Health; Dr. A. CASTELLANI; and Médecin-principal VISBECQ, of the French Army Service de Santé, was appointed early in August. Its members immediately went to Poland for about six weeks of inquiry and inspection, and on their return presented a valuable report which the League has just issued, together with a preliminary statement by its secretary-general, Sir D. HENDERSON. We give an abstract of the report in another column of our present issue. It shows evidence of great industry in collecting facts and the conclusions and recommendations have been made with obvious care and good judgment on a wide survey of the needs of the case. Typhus and relapsing fever present throughout many towns and villages of "Congress Poland," and persisting even in the summer months; special concentration of the infection in Galicia and mining and industrial areas, which are destitute through the destruction of machinery or the absence of raw material; a population, a large part of which is compelled to live under conditions of gross overcrowding and usually of food shortage; general prevalence of lice; constant importation of disease from the East by the million and a quarter refugees who have already come in, an importation likely to continue for months to come:—these and many other considerations lead the committee to conclude that very severe epidemics are to be expected in the coming winter unless energetic measures are taken. The report reflects most favourably on the present

government of the country, on its public health service, and on the devotion and knowledge of its doctors. They know what is wanted, and are in a position to do what is required if they have material and personnel. But hospitals are often mere shells in which there are no sheets, blankets, or ordinary utensils; refugee observation-stations cannot be properly worked through absence of sufficient food, clothing, and medical staff; the troops on the front, in frequent contact with the disease, cannot be systematically cleansed and "deloused" without being given changes of underclothing and soap. The material already sent has been invaluable, but it is all used. Doctors are needed everywhere. In some districts there is but one doctor for 30,000 persons, and the average for the whole of the civil population is 1 per 10,000. If doctors can be obtained from other countries they can be used at once at the hospitals, which are now being properly equipped, and they will release a number of Polish doctors for house-to-house visits, which require men with a knowledge of the Polish language. There is a similar demand for nurses and for workers to help in the organisation of the Polish Red Cross Society.

In issuing the report the League points out that the aid required will have to be furnished by the Allied Governments as well as by voluntary effort. These Governments should recognise frankly that states bordering on what once was Russia are in this matter of epidemic disease struggling, not for themselves alone but for the common good. At the same time the League takes up the voluntary burden and is ready to act at once. The Red Cross can and will alleviate some of the more acute misery, interfere with the progress of epidemic disease, and save some of the children on whom the future of these countries depends. The means which are being taken by the League for this end will, no doubt, be shortly announced in more detail, so that all who desire to coöperate in the movement will know what is required of them. We trust that every success will attend the efforts of the League.

The Genesis of Cancer of the Uterus.

IN spite of the large amount of experimental research which has been carried out on the causation of cancer we know but little of this subject. The theories are many but the facts are few, and the facts, such as they are, do not carry us very far towards our goal. The first conception of these growths was that cancer was a diathesis and the tumour a parasite. Then followed the realisation that the main distinction between the normal cell of the part affected and the cancer cell was the unlimited power of proliferation of the latter. The cause of this abnormality was thought to be either the effect of some chronic irritation or some condition inherent in the cell itself. The numerous experiments which have been carried out in recent years on rats and mice have established certain facts of the utmost importance. It has been found possible to transplant certain strains of cancer, and it has been further demonstrated that when a growth of relatively low virulence is inoculated into an animal it may become entirely absorbed, and that the animal acquires a relative degree of immunity against similar malignant growths. The further interesting fact that carcinoma and sarcoma may occur together, affecting the same tissues, would seem to show that they are due to the same stimulus acting upon different cells. Other experiments have demonstrated that almost any cell can be made to take on malignant characters as the result of an external irritant, and that growths of this nature may continue to grow and retain their malignancy when transplanted into one host, but may lose that property and become innocuous when transplanted into another host. This would seem to indicate that the action of an external irritant must be supplemented by some special reaction on the part of the tissues of the animal affected, which takes us back some distance towards the original conception of cancer as a diathesis. It is evident, however, that the problem is one which is very far from being solved, but that certain vital reactions on the part of the tissues affected, of the nature of which we are quite ignorant, are always associated with the development of such new growths.

Traumata have always been considered to play an important part in the ætiology of malignant tumours, and especially is this so in the minds of the laity. It has been stated, for instance, that in carcinoma of the breast there is a detailed history of an intensive mechanical injury in about 10 per cent. of the patients, while in sarcoma of the breast it would appear that a number of cases have been recorded in which a definite injury to the breast has been observed to be followed by a sarcomatous tumour. The occurrence of cancer in the chronic ulcers produced by the use of the portable fire basket, or kangri, of the Kashmiri, occurring, more especially, as NEVE has shown, when there has been actual contact of the sooty pan with the skin, due to burning away of the outer basket-work; the curious cases of soot and pitch cancer; and the variety following the use of X rays would appear to establish a very definite relationship between the development of, at any rate, squamous carcinoma of the skin and a previous condition of chronic dermatitis. It has further been suggested in connexion with the occurrence of cancer of the lower lip in men associated with leukoplakia that the lip injury, due to excessive smoking, has some determining influence; and similarly, in the case of cancer of the vulva, the traumata associated with coition and childbirth may play a predisposing part. Some gynæcologists maintain that the frequency of tears of the cervix uteri consequent upon child-bearing accounts for the frequency of cancer in this particular organ. It is on the whole uncommon for a carcinomatous growth of the cervix to start actually in a tear, but that chronic cervicitis is constantly associated with carcinoma of this part of the body is certain, and the influence of the tear may well be that it forms a point of entry for infection resulting in the chronic inflammation. There is no certain evidence that the number of children born has much influence, and it is a curious fact that American Indian women are more fertile than white women, and yet carcinoma of the uterus among them is comparatively rare.

In a recent paper read before the Obstetric Section of the Royal Society of Medicine, Dr. F. J. MCCANN attempted to show that certain conditions of the cervix uteri, such as erosions, fissures, chronic inflammation, and chronic hypertrophy, should be regarded as pre-cancerous conditions and should always be considered with suspicion. To avoid the subsequent development of cancer of the cervix he advocates in women with signs of chronic cervicitis, who are approaching the age at

which cancer usually develops, that the cervix uteri should be removed by supravaginal amputation as a prophylactic measure, and that in certain circumstances in which there is evidence of chronic inflammatory disease of the uterus a total hysterectomy should be performed. Dr. MCCANN'S suggestions met with a good deal of criticism, for he particularised conditions the immediate relationship of which to the development of cancer has not been certainly established, and did not base his suggestions on the more certain ground that most of these conditions are associated with chronic inflammation of the cervix, which is admitted by most pathologists to be a definitely pre-cancerous condition. But although we feel that Dr. MCCANN attempted to prove too much, yet we believe his main contention correct; if a woman has a chronically inflamed cervix, which is the seat of tears due to the traumata of childbirth, her chances of subsequently developing carcinoma would be materially lessened if the unhealthy cervix were removed. There can be no doubt at all that if the routine removal of such cervices by supravaginal amputation, an operation practically free from risk, was practised on a large scale, a very large number of women would be saved from dying a painful death from cancer of the uterus. Unfortunately, even at the present day the number of women with cancer of the uterus, who seek advice while the disease is still in a sufficiently early stage to enable a radical operation to be performed, is but a small percentage of those affected, and until steps are taken to educate women more thoroughly as to the importance at certain ages of what they often regard as merely trivial symptoms, the appalling death-rate from this variety of new growth will never be lessened, unless some such proposal as that put forward by Dr. MCCANN is adopted. That he fails to produce evidence of the causal relationship of some of the conditions he impeached as precursors of cancer is no doubt true, but there can be no question as to the accuracy of the observation that women with chronically inflamed cervices, which have been damaged, are especially liable to develop cancer, and that this condition is a definitely pre-cancerous state of this particular organ. Therefore the remedy which he suggests is not one to be dismissed lightly as useless and impracticable.

Tuberculosis Problems in the New Age.

THE six years which have elapsed since the National Association for the Prevention of Consumption and other Forms of Tuberculosis last held its sessions in London have very materially altered the nature of the problems presented to it. Tuberculosis in 1913 was supposed by the sanguine to be well in hand and our measures for dealing with it to be well conceived, needing only further development on the same lines. The war has put an end to all that. Enlightenment first came from France, and was doubly illuminating because it is easier to learn from the misfortunes of others than from our own. The French delegates to the Conference were able to assure us that the incidence of tuberculosis among French troops had been grossly exaggerated—it was suggested for ignoble reasons. But the delegates also made it clear that the sudden drafting of the whole male population of France to defend its frontiers immediately resulted in placing a strain on that large proportion who were suffering from quiescent tuberculosis beyond what they were able to bear. The result was widespread disease little short of national disaster. In 1917 the French Government, realising its inability to cope with the outbreak of tuberculosis in the country, accepted the American offer of help, and the work of the Rockefeller Institute in Paris, with Dr. DAVID LYMAN at its head, marks an epoch in the antituberculosis campaign. Dr. LYMAN could obtain neither French doctors nor nurses; he had to bring with him his own staff, and to begin by educating a new class of public health visitor or nurse before the educational campaign could be launched. More surprising than the initial lack of means was the reception which the Institute met with. In many of the towns a large proportion of the population assembled to witness the tuberculosis show which perambulated the country. But the Rockefeller Institute regarded this whirlwind campaign as but the preliminary to serious educational work based on local effort, and went on to obtain in many departments complete unanimity between the official and intellectual heads of the community in working out administrative schemes. The results are not likely to be seen for long enough, but the Franco-American tuberculosis adventure will go down to history.

In our own country it is now clearly enough realised that our conceptions of means were vastly too narrow. Fortunately, Sir ARTHUR STANLEY is offering, in the name of the Red Cross, not merely a prospect of largely increased funds available for antituberculosis work, but a practically unlimited body of educated women, sympathetic amateurs, who are keen to offer their services if they can be usefully employed. In an impoverished world it is urgently necessary to be parsimonious both of effort and of money. Both must be employed where they will give the best return. Professor WILLIAM C. WHITE, of Pittsburgh, whose brief but suggestive address we print at the front of this issue, regards the share of the tuberculosis nurse as 60 per cent. at least of the total antituberculosis effort. Tuberculosis nurses in America have, we believe, had three years' general hospital training, plus a year of special public health work. Although this may be ideal it is obviously unattainable at present, and there can be little doubt that, short of this, there is a great opening for a band of trained workers to translate into the practice of everyday life in working-class households the skilled knowledge which is at the disposal of the few. The fault of all our public health work has been that it has not penetrated to the masses of the population. No one now regards the sanatorium as more than a link—a very useful one, it is true—in the administrative chain. Dr. ADDISON, in his opening address at the Conference, enunciated three factors which he held to be of paramount importance—namely, housing, an educational campaign, and research. The first and the third of these, the Health Minister reminded his audience, depended for their realisation on the expenditure of money, and in the first case the result must be strictly proportional to the outlay. The second desideratum is largely a question of personal effort. The lesson of the war will not have been in vain if it leads to a proper appreciation of the value of coördinated action in pursuit of national health, and particularly in the elimination of tuberculosis.

Annotations.

"Ne quid nimis."

THE POSITION OF RADIOLOGY IN MEDICINE.

IN his presidential address before the Electrotherapeutic Section of the Royal Society of Medicine, appearing in our present issue, Dr. A. E. Barclay raises many points that are worthy of serious consideration, especially by those who are engaged in hospital work and administration. If there is one subject which the war has brought more than another into prominence it is the importance of the intelligent use of physical agents in nearly every branch of medical science. To put it generally, through the agency of the X rays, electricity, heat, light, radiation, and massage many thousands of persons who would otherwise have been helpless cripples have been rendered contented and useful citizens. The transformation of Roentgen's interesting laboratory observation into one of the most important branches of medical and surgical work has been due almost entirely to members of the medical profession who have devoted their best energies to this purpose, and who have made the medical applications of X rays and electricity their life's work. Twenty-five years ago an X ray department was outside human conception—to-day it is among the most important special departments in any progressive hospital; and because every other department may be dependent on it, more cases pass through the hands of the head of the X ray department than through those of any other member of the staff. And the radiologist discusses cases and problems with the head of every other department in the hospital. This valuable position on the staff of the institution is not realised in any general way in hospital administration. It is only in rare instances that the radiologist is a member of the full staff; most often, and especially in London, he holds his appointment with little or no security of tenure and under conditions that lend themselves to criticism. There can be no justification for such an unfair and short-sighted policy. No valid excuses have been put forward in defence of the relegation of the radiologist to a status inferior to that of his colleagues, some of whom have less responsible duties. The radiologist is entitled to a place equal to that of the head of any other special department. The increasing value of radiology and electrology in medical and surgical work demands a recasting of the circumstances in which these appointments are offered and accepted. We are glad to note that at the University of Cambridge the importance of the subject is recognised, and a course is now prepared of a very comprehensive character, to be closed with a diploma in radiology for those who can satisfy the examiners.

THE TEACHING OF TROPICAL MEDICINE.

THE London School of Tropical Medicine will within the next few months remove from its abode at the Albert Dock Hospital to a permanent home in what was the Endsleigh Palace Hotel, close to Euston Station. The journey from Fenchurch-street Station to the docks was described by Dr. Andrew Balfour at the annual school dinner on Oct. 16th, in the words used by one Scottish divine of another, as "short, dark, and dirty," and whatever reason there may have been at the time of its foundation for placing the school at the point of disembarkation of its patients, in these days of motor ambulances and quick road transport that reason no longer exists. It cannot fail to be of great advantage to the school to be located in the neighbourhood of one of the largest medical teaching centres in London, and the gain will doubtless be mutual. Of clinical material there can be no lack. The return of our citizen army from many tropical regions, bearing with them not only wounds but the protozoal fauna of the parts from which they came, will ensure that, and as Professor J. L. Todd of McGill has recently pointed out[1] to Canadian doctors, they must be prepared to meet with "Uncanadian diseases." We understand, too, that the India Office is to avail itself of the services of the school for the observation and treatment of its employees of whatever grade. Staff and salaries will have to be reconsidered in the new and palatial surroundings. It is hardly to be expected that the numbers of students will remain limited to those as yet taking the course, who are for the most part entering the Colonial Medical Service. An intensive three months' training in tropical medicine is likely to become the equipment of every ambitious medical student, and the school now has on its register a number of members of allied or associated nations on their way back from the European turmoil. We may gratefully remember Mr. Joseph Chamberlain's keen intuition, to which the school owes its inception, and congratulate Sir Patrick Manson on seeing this fruit of his long toil.

EYE-STRAIN AND CINEMAS.

WE learn with relief that the question of eye-strain in cinematograph halls is under consideration of the London County Council. The Illuminating Engineering Society have been asked for advice, and that body propose to appoint a committee of investigation which, it is proposed, will include members of the Council of British Ophthalmologists and of the Physiological Society, besides representatives of the cinematograph industry. The subject is not new. In 1917 Dr. J. Kerr read a communication before the Illuminating Engineering Society dealing with the effect upon the eyes of varying degrees of brightness and contrast, and made certain recommendations for the improvement of cinema performances from this point of view. In the same year a commission appointed by the National Council of Public Morals issued a voluminous report in which the recommendations of Dr. Kerr and others were embodied. In view of the growing popularity of cinemas and the probability of their continued increase in the near future, not only for purposes of recreation but as a means of education, the matter is one of considerable urgency, and it behoves medical men in especial to have clear ideas on the subject. There is no evidence that organic injury to the visual apparatus can be directly produced by these displays—at any rate, when the eyes are healthy. On the other hand, it is a matter of common knowledge that they frequently induce a high degree of nervous fatigue. This fatigue probably arises mainly from the following causes:—

1. *Glare.*—By glare is meant the uncomfortable sensation caused by a brightly illuminated surface when the eyes are in a state of dark adaptation. It is contributed to largely by the excessive darkness of the auditorium, which produces

[1] Canadian Medical Association Journal, August, 1919.

an excessive contrast with a highly illuminated screen. Especially trying are some of the programme slides shown between the films, in which the contrast between the bright lettering and the dark background is far too abrupt. In this connexion the lighting arrangements, not only of the auditorium but of the passages, require attention.

2. *Flicker.*—This is the unpleasant sensation caused by the changes in the moving films when these are not sufficiently rapid to produce the effect of continuous motion. The result is the necessity for continual rapid readjustment of the whole visual mechanism on the part of the spectator. In this respect much depends upon the quality of the film. Old or damaged films are especially injurious, causing flashes of light, which are extremely trying.

3. A third cause of fatigue results from the heavy demands made upon the lateral muscles of the eye and the nervous mechanism by which these are coördinated when any swiftly moving object is fixed by a stationary observer, or when an observer who is himself swiftly moving, as in an express train, fixes a comparatively near object from the carriage window. In either case, the nearer the object to the observer and the swifter the motion, the more work is thrown upon the lateral eye muscles. In many films, those representing processions, for instance, the motion is unnaturally accelerated to prevent boredom on the part of the spectator. The spectator, however, if he is sitting at all near the front, becomes unpleasantly conscious of the effort thrown upon his eye muscles.

It is especially in children that the bad effects of cinema fatigue from all these causes are apt to show themselves. Defective ventilation, when it exists, is an additional and potent cause, and in some halls the irritating effect of an atmosphere thick with tobacco smoke upon the conjunctiva is an additional drawback. The displays are generally far too long, and even for adults it is more trying to concentrate the attention on any object when the retina is in a state of dark adaptation than when it is adapted for light. In all these respects there is great need for a proper standard for cinema displays to be laid down by public authority. It is to be hoped that the matter will not be lost sight of by the London County Council until this has been done, and that their example will be generally followed.

CALCIUM AND BACTERIAL GROWTH.

Sir Almroth Wright has introduced the term "kataphylaxis" for the transport of leucocytes and antibodies to the site of infection in bacterial disease. The same term was used in an opposite sense by Dr. W. E. Bullock and Dr. W. Cramer in a paper, from the laboratories of the Imperial Cancer Research Fund, on a New Factor in the Mechanism of Bacterial Infection recently read[1] before the Royal Society. These authors denoted thereby a rupture of the local defence mechanism directed against bacterial invasion, and possibly their claim to the use of the term in this sense was better founded, although to avoid confusion they have since substituted the term "aphylaxis." Experience on the Western Front made it quite clear that not all soil-contaminated wounds, which yielded the flora of gas gangrene and tetanus, gave rise to the clinical symptoms of infection with these organisms, and Dr. Bullock and Dr. Cramer have now shown experimentally that the determining factor in these two infections may be the presence of a soluble, ionisable calcium salt. The nidus theory thus is not sufficient in itself to explain the onset of gas gangrene. Sterilised earth added to the bacilli of tetanus and gas gangrene, completely freed from their toxins either by washing or by heating to 80° C. for half an hour, so that spores are formed, will produce virulent gas gangrene or tetanus, although without the earth no symptoms ensue. If the soluble calcium in the earth be removed by sodium carbonate the result is again negative. When no calcium is present in the wound it appears that lysis and phagocytosis suffice to keep toxin formation in abeyance. Even so minute a dose as five milligrammes of calcium chloride, if injected along with bacilli or spores into a mouse, will initiate a virulent type of disease. Chlorides of sodium, potassium, strontium, or magnesium do not produce this effect. Magnesium proves antagonistic to calcium. With calcium the same result ensues when bacteria and salt are injected successively at the same site, or when different sites are injected simultaneously or at different times. The writers are inclined to think that there is an additional factor at work besides calcium, but are not as yet able to define its nature. Whether these facts have any bearing upon osteomyelitic or other bone infections is not yet apparent, but it is clear that we have not yet got to the bottom of the problem of the function of calcium in the bodily economy. If calcium should be confirmed as a determining factor in tumour formation as well as in bacterial infection, we can understand why magnesium is sometimes effective in removing warts or, as some hold, in arresting cancer. The beneficial effect of copper salts or of colloidal copper in malignant growths may also rest on calcium antagonism or neutralisation. The whole subject is one of great interest, and will, we hope, be followed further by the Imperial Cancer Research Fund.

[1] Proceedings of the Royal Society, B., vol. xc, 1919.

THE SCOPE OF POST-GRADUATE EDUCATION: ADDRESS BY SIR GEORGE NEWMAN.

Sir George Newman, K.C.B., the Chief Medical Officer of the Ministry of Health, opened the winter session of the post-graduate course at the West London Hospital on Oct. 16th with a short address on the objects and scope of post-graduate medical education. After complimenting the committee upon the arrangements made at the West London Hospital, which contained in his view the elements of an ideal scheme, Sir George Newman presented the chief reasons for such teaching as (*a*) the overcrowded state of the medical curriculum which seemed to require some lightening at the beginning and at the end; (*b*) the new medical work which is continually arising both in methods and in the applications of medicine and surgery, and the spirit of prevention which is more and more inspiring all branches of medicine; (*c*) the need for revision which every practitioner feels after a few years of active practice; (*d*) the desirability of what has come to be called "team work"; and lastly (*e*) the new relations and duties which the State is imposing upon, or at least demanding from, the general practitioner, such as the work of the School Medical Service, the National Insurance system, and the developments likely to arise under the Ministry of Health. Sir George Newman next turned his attention to the principal subjects which in his view should form part of any programme of post-graduate teaching. He named first the desire of the practitioner seeking further medical education to obtain a wider and more accurate experience of clinical practice. He placed laboratory work next, referring in particular to the importance of the practitioner being able to submit specimens in suitable condition for examination and with adequate particulars as to history, and the necessity of being able rightly to interpret pathological reports. In a third category

came the desire of the practitioner to specialise in eye, ear, nose, or throat, diseases of women and children, radiography, &c. In a final category he placed the importance of systematic study of particular subjects—such as dyspepsia, mental disease, orthopædics, venereal disease, and "war neuroses." Finally, the lecturer dealt with ways and means of providing satisfactory post-graduate training. He recommended the attachment to each medical school of a complete post-graduate scheme with clinical assistantship appointments for practitioners (3–6 months), comparing England rather unfavourably with Germany and America in this respect. Another method was to provide post-graduate teaching *ad hoc* preferably at a general or special hospital, accessible, at convenient hours, and at reasonable fees. Still more advantageous was the method he hoped to see developed, in the course of a few years, of associating a post-graduate teaching scheme in relation with the new clinical units, the establishment of which is now under consideration in the principal medical schools. He thought that such teaching should be separate from that given to the ordinary medical student, while it should be of recognised university standard and provided by the permanent staff of the unit in association with the hospital staff of the medical school. Lastly, Sir George Newman adumbrated a scheme by which post-graduate teaching should grow out of the new network of hospitals and clinics which was being steadily created throughout the country. Through these institutions a great deal of valuable clinical material was passing, not available for the ordinary medical student, but of great value and interest to the practitioner.

TREATMENT OF SOFT CHANCRE.

AT a recent meeting of the Société de Thérapeutique of Paris Dr. Goubeau[1] described the following method of treating soft chancre which had been successfully adopted in 366 cases in the French Army. The surface of the chancre is first carefully cleaned with a swab soaked in ether and then painted by a brush or piece of stick wrapped in cotton-wool with a 1 in 50 alcoholic solution of sodium arsenate. This drug being only slightly soluble in alcohol is in suspension rather than in solution, and the bottle containing it must therefore be shaken well before use. Lastly, the alcohol must be made to evaporate by a stream of air from a bellows or a Paquelin cautery. A fine film of arsenate of soda is thus deposited on the surface of the chancre. The swabbing and evaporation must then be repeated and the chancre covered with aseptic gauze. Under this treatment it rarely needs more than from 3–5 days for the chancre to be transformed into a smooth, red, healthy wound with a rapid tendency to cicatrise. When the pus does not reaccumulate a daily application of iodoform may be substituted for the arsenate of soda. In the case of chancres complicated by buboes, if the bubo is not yet softened, 1 or 2 c.cm. of a sterile watery solution of 1 in 100 sodium arsenate is injected into the glands, the injection being repeated, if necessary, every two days. If an abscess has formed, the pus is evacuated with a small trocar and the solution of sodium arsenate injected, together with 1 c.cm. of ether, which enables the cavity to be distended and allows the sodium arsenate to penetrate into all the parts of the cavity. The injection should be repeated daily or every two days. If the bubo is already opened it should be treated like the actual chancre by cleaning it with ether and swabbing it with a 1 in 50 solution of sodium arsenate.

[1] Bulletin de la Société de Thérapeutique, 1919, 4 série, xxiv., 150–7.

RUPTURE OF INTESTINE WITHOUT WOUND OF THE ABDOMINAL WALL.

IN the issue of THE LANCET of July 19th last appeared an account by Mr. W. H. Battle of a case in which he had operated successfully for a rupture of the jejunum caused by a blow on the abdomen, and in the present number we publish a paper by Mr. Gerald Stanley on four cases of a similar nature. The main difficulty in connexion with this injury lies in diagnosis. When there has been some form of blow on the abdomen, but no wound of the abdominal wall, the surgeon has to answer the question, Has there been important damage to any of the abdominal viscera? And in framing an answer to this difficult question the surgeon has to remember that a diagnosis must be made at once, for time is a most important element in the matter. If there has been any severe injury to a viscus, the sooner the abdomen is opened the better chance of recovery there will be for the patient. There are practically only two forms of injury with which the surgeon need concern himself—laceration of a solid viscus with hæmorrhage, and rupture of a hollow viscus with extravasation of the contents. Hæmorrhage is, on the whole, the more easily recognised of the two. The rapid increase of the faintness, the progressive increase of the collapse resulting from the blow itself, the dullness in the flanks, pointing to the presence of free fluid in the abdominal cavity, and the increasing frequency and feebleness of the pulse, will almost always point clearly to the existence of hæmorrhage. Here an immediate laparotomy will in a very large proportion of the cases enable the surgeon to arrest the hæmorrhage and to save the patient's life. The case is, however, far otherwise when the injury produced by the blow is a rupture of one of the hollow viscera of the abdomen. In a torn bladder the symptoms will, as a rule, arise quickly, and a careful examination of the bladder will generally point strongly to a correct diagnosis, when early surgical intervention will lead to a successful closure of the rent. When the stomach or intestine is ruptured the diagnosis is more difficult, the material for exact diagnosis being, perhaps, temporarily wanting. The tear of a piece of bowel will lead to the escape of gas and fæcal contents. The passage of gas from the bowel into the peritoneal cavity may enable the liver to fall away from the anterior abdominal wall with a loss of the liver dullness. At one time this sign was regarded as an almost infallible sign of a rupture of stomach or bowel, but few modern surgeons lay much stress on the absence of the liver dullness, for experience has shown that an extensive tear of the bowel may occur without any such physical sign, and further that there may be much diminution of the liver dullness without any perforation having occurred. So that at the present time it is generally recognised that no real reliance can be placed on the presence or absence of the liver dullness. There may be also a complete absence of any dullness in the flanks indicative of fluid poured out into the peritoneal cavity, and, as a rule, other signs are wanting until the onset of peritonitis demonstrates clearly

that there has been a perforation. Then it is often too late; the ideal time for operative interference has gone by and the peritonitis has become so severe that the operation is in vain. How, then, can the surgeon know in time that the bowel has been injured? He may judge to some extent by the amount of the shock, but this is no certain guide, though it may be said that the greater the shock present the greater the probability that some viscus has been injured; for as a rule the shock, or at least a major part of it, is due to the abdominal blow and not to any tear of the bowel. If the surgeon is sure that the patient has received a severe blow on the abdomen, and if there is any possibility that a viscus has been damaged, he should operate at once. It may well be that he will sometimes perform a laparotomy unnecessarily, even in the presence of many indicative signs and symptoms, but if the operation be done with care no harm should follow. It is certain that in the large majority of cases he will find some injury of one or other viscus to justify the clinical diagnosis, when the patient will benefit greatly by the early operation. It is of the greatest importance to remember that it is not at all rare to find more than one lesion, and an instance of this is found in Mr. Stanley's paper; in one case there described there was in addition to the tear in the bowel a rupture of the urinary bladder. In early operation lies the only hope in these cases of rupture of the intestine without a wound of the abdominal wall, and only the utter absence of facilities for performing the operation should prevent it being done.

A VETERINARY SANITARY SERVICE IN RELATION TO PUBLIC HEALTH.

AN account of the activities of the Veterinary Sanitary Service of Paris for 1917 shows an increased incidence of rabies consequent on an increase in the number of unmuzzled uncontrolled dogs in the area. The zeal of the public in the capture of wandering dogs was attended with good results in 1916, and it is to their lack of perseverance in this direction that the 56 cases of rabies in Paris, against 51 in 1915, is largely due. The direct causes of the epizootic were dogs contaminated in the provinces, dogs bitten by others proceeding from the front and passing on, and dogs bitten by rabid strays. In January, 1917, 2163 dogs were impounded by the police, and five cases of rabies were recorded, whereas in December, 1917, 758 dogs were impounded by the police, and there were 14 cases of rabies recorded. The figures for 1918 are likely to proceed higher. Forty-eight people were bitten by the rabid dogs, and after treatment at the Pasteur Institute no deaths occurred.

Apart from activities directed against the spread of rabies, good work has been done in the protection of the public against diseases communicable to man by animals. Inspection of cattle for tuberculosis has been extensively carried out; the frequency of tuberculosis in pigs and fowls has not been overlooked, and 706 porcine carcasses were found affected. In fowls, apparently in a good state of flesh, large tuberculous lesions have been found in the liver, spleen, and lungs, and it is now common practice to make an incision in the right flank of fowls to ascertain the condition of the spleen and liver. 396 cases of avian tuberculosis were discovered. The diseases or defects found in fish, molluscs, and crustaceans included putrefaction, natural death, tuberculosis (in a sturgeon), redness of the flesh (codfish), ascites, and tuberculiform vegetations. The abattoir of Vincennes was an important centre for the supply of meat to the French army. It was well supervised and inspected, and over 23,000 lb. of diseased or defective meat were condemned there. Among 72,036 horses slaughtered for food six cases of glanders were found.

The report throughout bears evidence of careful compilation and thoroughness. It furnishes a useful lesson in the value of an efficient veterinary sanitary service in the protection of human health. It shows what danger may arise to the community where inspection is superficial or non-existent, and provides a conclusive and indisputable piece of evidence in favour of the establishment throughout this country of a system of public abattoirs and meat-inspection halls.

THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE next annual meeting of the British Medical Association will be held at Cambridge under the presidency of Sir T. Clifford Allbutt, Regius Professor of Physic and President of the Association. The meeting of representatives will be held on Monday, June 28th, the general meeting and meetings of sections beginning on June 29th and closing on Saturday, July 3rd. It will be seen that all the dates fall a month earlier than usual, having been dictated by the exigencies of the Cambridge term. Nor is this the only innovation. It is proposed that the number of sections shall be smaller than has at all recent years become the custom. There will be sections of medicine, surgery, physiology and pharmacology, and neurology and psychiatry, each of these sections meeting on three days, while certain other sections will meet on one day only. The desire is to give a practical character to the proceedings by arranging a large number of clinical and laboratory demonstrations, when the facilities to be afforded by the University become obvious. We may surmise that the Special Clinical Meeting of the Association held in London this spring has to some extent formed a model for the Association in the plans for the forthcoming meeting, for the gathering in April last was an unqualified success.

THE Ministry of Health announce that arrangements have now been made to extend considerably the functions of the Welsh Board of Health. The work to be immediately transferred includes all the functions of the Housing Department of the Ministry of Health in Wales. Mr. A. Lloyd Thomas, the Housing Commissioner for Wales and Monmouthshire, becomes a member of the Welsh Board of Health, and his staff is transferred from the London to the Cardiff establishment. Arrangements have also been made to transfer to Cardiff an important part of the work of the Ministry in relation to public health.

THE Juvenile Organisations Committee was appointed by the Home Secretary in 1916 in response to the widespread feeling that the conditions of war were conducing to juvenile criminality or insubordination of a serious if not criminal type. The work of the committee has now been transferred from the Home Office to the Board of Education, Mr. J. Herbert Lewis, Parliamentary Secretary to the Board, taking the place, as chairman, of Dr. A. H. Norris, who remains a member of the committee. Mr. C. E. Clift is organising secretary, and the secretary is Mr. R. S. Wood, to whom all communications should be addressed at the Board of Education, Whitehall, S.W. 1.

REPORT OF THE INTER-ALLIED MEDICAL COMMISSION TO POLAND.

THE report of this Commission to the League of Red Cross Societies has just been issued by the League from its headquarters at Geneva as No 4 of its bulletins. We refer elsewhere in this issue to the circumstances in which the Inter-Allied Medical Commission was formed and the general nature of its findings. Below are notes of some of the principal matters brought out by the report.

Nature of Investigation.

The Commission was appointed on August 6th last and began its inquiries in Warsaw on August 17th. The Russian and Galician fronts were visited, together with the towns and villages at present under military government in those areas. Subsequently a tour was made of various parts of "Congress Poland," including the manufacturing and mining areas in the south-west of "Congress Poland" and typical agricultural districts. The Commission left Poland in the middle of September and reported to the League without delay. They received every facility for the inquiry, and adopted a prearranged routine of inspection at the various towns which enabled them to get the main facts as to disease prevalence, food-supply, destitution, sanitary conditions and administration, and so forth.

Interim Report.

On Sept. 9th an interim report was telegraphed to Geneva confirming the statement that typhus was widely spread and advising action by the League (*a*) to coördinate Red Cross efforts in Poland; (*b*) to support and maintain cleansing stations for refugees and repatriated persons; (*c*) to obtain doctors, ambulances, and hospital personnel; and (*d*) to inquire the most expeditious way of obtaining and consigning 2000 tons of soap; shirts, drawers, and blankets up to 200 000 of each; ordinary equipment and utensils for a hundred hospitals of 300 beds each; drugs, especially salvarsan, iodides, quinine, castor oil, salol, and opium; *lessiveuses* or other apparatus for boiling linen; and outer clothing for about 200,000 men, women, and children.

Prevalence of Typhus Exanthematicus in Poland in Recent Years.

Typhus has long been endemic in Poland, but in general only manifested itself by occasional scattered cases before the war. With the invasion, destitution, and all the other causes which brought serious social disturbances into the country the disease found conditions favourable to its development, and reached pandemic proportions in 1918 and 1919. The latter has so far been the worst year. In "Congress Poland" alone, from Jan. 1st. 1919, to July 27th, the number of declared cases was 124,620, with 9657 deaths. In a general way the progress of the epidemic was a rising curve from January to April, becoming practically stationary from April to June, at which time it began to decline. In the capital, Warsaw, the epidemic was severe in 1918, but in 1919 reached a much lower figure, a fact which the Commission ascribes largely to the energetic action of the medical officer of the city. Figures are given for various districts, but great caution is advised as to the use of them. Notification in some parts of Poland has only lately been introduced and thousands of cases are not seen by doctors, while certification of the causes of death is very unreliable. Apart from figures, however, the Commission had abundant evidence of the severity of the 1919 epidemic in certain places visited, including Eastern Galicia and the industrial and agricultural area to the south-west of Congress Poland. 5688 cases of typhus had been reported among troops at the base between January and July, 1919, and the corresponding figure for troops at the different fronts from March to July was 5863. The forces in Galicia and Volhynia were those most severely attacked. The mortality was very difficult to estimate, but it appears to have been generally low, about 10 per cent. to 14 per cent.

Typhus in August and September.—The most serious factor in the situation, as actually seen by the Commission, is that typhus, though greatly diminished, "continues to exist, and in some cases to increase, in so many centres, all over the country, and in the military forces also, notwithstanding the time of year. The refugees and the prisoners continue to import typhus, and the disease persists in local foci without any new introduction from outside." This persistence suggests that typhus will maintain a fairly high rate of epidemicity until the winter, when it may be expected to attain the proportions of a large epidemic in consequence of the bad conditions of living and increased opportunities of infection which are to be expected in the winter months.

Character of Prevalent Typhus and its Association with Relapsing Fever.

The typhus appears generally to be typical, without any specially prominent complications. In Warsaw and some other towns the Weil-Felix reaction has been much used for confirming the clinical diagnosis. The epidemic is accompanied by a widespread prevalence of relapsing fever, and in some districts cases of relapsing fever were much more numerous than those of typhus. Salvarsan, or salvarsan combined with tartar emetic, is in great demand for treatment of relapsing fever cases, but hitherto has, with other drugs, been almost impossible to obtain at the Polish hospitals.

Presence and Nature of the Conditions which Cause the Spread of Typhus.

These are discussed in some detail in the report. Great stress is laid on the overcrowding of persons in houses, due either to actual destruction of dwellings or to the increase in population from refugees and prisoners of war. It is estimated that 1½ million persons have been added to the population in this way during the last year, and that about the same number is still to come from Russia as well as from other parts of Europe. These refugees after arrival get scattered throughout the towns and villages, and are usually quite destitute. Malnutrition also plays an important part in some areas. Lousiness is reputed to be "practically universal" among the ordinary working-class and poor population. In the smaller towns and villages, and sometimes also in the larger towns, there is nothing worthy of the name of a public water-supply. Soap in many places is almost unobtainable, bad in quality, and dear. Fuel, except in the wooded districts, is ver scarce. The standard of personal cleanliness, especially among the ordinary Jewish population, has probably always been low, and in present circumstances has become lower than usual. Infection is spread by undetected cases, particularly in children, by overcrowding in public vehicles, by the clothing of persons who have died from typhus, and in various other ways. In many places no attempt at hospital treatment can be made, and it is frequently impossible to carry out essential measures of cleansing and disinfection.

The refugees arrive at frontier stations closely packed in trains, sick and healthy together, with numerous cases of typhus among the sick. At one refugee station the proportion of refugees found to have typhus on arrival was as high as 2 per cent. There are several stations for the reception of these refugees, which have excellent equipment for cleansing, disinfecting, &c., on a large scale. But from the absence of soap, linen, spare clothing, and food at these stations they have not been utilised as thoroughly and systematically as the conditions require.

Similar considerations apply to the large numbers of prisoners who have been lately captured or who have surrendered from the Bolshevist, Ruthenian, and Ukrainian forces. The conditions under which these prisoners are kept, and the arrangements for preventing the spread of infection, were unsatisfactory at two large camps visited, Dambié and Brest-Litovsk, although improvements were in progress. These improvements are needed also in regard to dysentery, which was epidemic at these and other prisoners' camps.

In the army at the front special risk arises for the coming winter in consequence of the close way in which the civil and military population are associated and of the absence of sufficient underclothing, which prevents any systematic delousing of the soldiers.

The Question of a "Sanitary Cordon."

The Commission give a long chapter to the importance of checking typhus in Poland for the protection of Western Europe and America, and the question of a "sanitary cordon," which deserves close attention from the public health departments of the different countries which may be affected. Practically they conclude that it is at least

feasible, along the eastern border of Poland, to establish efficient observation stations, or to develop existing observation stations, at which the main streams of refugees from the East can be thoroughly and systematically cleansed, disinfected, and kept under observation if they have been contacts of typhus cases. This implies adequate reserves of food-supplies, sufficient hospital accommodation, and considerable stocks of spare clothing, &c., for the refugees—none of which are at present available, though a great deal has been done by the Polish officials with the resources at their disposal.

State of Sanitation of Polish Towns and Villages, and Risks of other Epidemic Diseases.

Poland, especially in the part formerly under Russian domination, obviously needs many years of sanitary effort and good administration before real and permanent progress can be secured. The provision of public water-supplies is one of the most pressing needs of the country, as are also drainage, public scavenging, cleansing and paving of courts and passages, and provision of infectious diseases hospitals, public baths, and public wash-houses. Generally speaking, and with exceptions for some of the large towns, "all the factors exist for the propagation of the epidemic diseases which are carried by contaminated water, food, or flies." Enteric fever is common, and numerous outbreaks of Shiga dysentery came under notice. Some 500 cases of small-pox have been reported during the present year, but vaccination is being actively pressed, and anti-typhoid, anti-cholera, and anti-dysentery vaccines are also being prepared on a large scale at the laboratories of the Ministry of Health for use among the general population. The Commission urge that all Red Cross and other workers going to Poland should be adequately protected by recent vaccination, and should also be inoculated against enteric fever and cholera.

Destitution; Condition of Nutrition of the Population; Reported Increase of Tuberculosis and Rickets.

The report recognises that the food-supply dominates the whole question of epidemic prevention, particularly in the cases of typhus and relapsing fever. While in some regions, recently occupied by the Polish troops, there was evidence of acute famine, the situation as a whole was relatively good; as a rule the evidence in bad districts was rather of the effect of a long-continued scanty diet and dear food than of actual starvation. It was obvious, however, that there was no margin of food in the country with which to meet special calls, such as those for refugees, prisoners of war, or even hospitals. In connexion with the system of public food distribution the Commission suggests that it would be well to link it up with the measures of disinfection and cleansing, in any area where these measures are in good working order.

Measures which are being Taken or Proposed to Check Typhus and Deal with other Epidemics.

Under this heading the report gives an interesting account of the establishment and development of the Ministry of Public Health in Poland, and of the very remarkable progress which it has made during its short existence. While, however, a great deal has been achieved in preliminary organisation (for example, by the appointment of local health officers and local health committees and the preparation of "antityphus campaigns"), it has often been impossible to make progress with actual preventive work owing to the absence of material and personnel, and a striking picture is drawn of the deficiencies of many of the civil and military hospitals in this respect. The position is the more to be regretted as the hospitals are often themselves very satisfactory institutions, with a thoroughly competent medical staff. The Ministry of Health has, however, lately secured a large quantity of useful hospital and other material from the surplus American military stores in France, and the Commission considers that with this equipment much can be done, provided that a supply of doctors and nurses can be secured. In the army and in the civil area under military control the great need is sanitary equipment, hospital material, and clothing.

"Neither technical knowledge nor devotion is lacking in the army medical corps, and from conversation with different Polish military doctors we were able to assure ourselves of this fact. We have likewise seen on the spot what they could do. ..... They know what has to be done, they want to do it, and only the lack of material means prevents them from realising it."

On the other hand, it is clear that a great deal has already been done to aid in this matter by the American Red Cross Society, which has been particularly active in Poland, as well as by the British Red Cross and others. The Commission lay great stress also on the need for supporting the Polish Red Cross Society, which has a large membership and enthusiastic workers, but needs outside help in its organisation.

Recommendations of the Commission.

The report concludes by a statement of the necessity of supplementing the present measures by voluntary action through the League of Red Cross Societies, and by recommendations the general nature of which will be gathered from the above notes. Organisation of the voluntary work, so that it can be directed to the combating and treatment of disease in Poland as a whole, receives the first place. A representative of the League on the spot should direct supplies or personnel to the military area, to the civil administration, or to the refugee organisations, according to the needs of the case, and for this purpose should be in the closest communication with all the different Government departments and voluntary agencies concerned. The supplies required are set out, much as in the interim report quoted above, but with some further detail. The League is urged to secure the services of doctors and nurses, and as an immediate working figure 50 doctors are suggested.

"We think that at the present time it should be possible for the League to obtain from different countries the services of medical men who have been recently demobilised and are willing to undertake infectious disease work in Poland, on a suitable agreement with the League, say, for 12 months, for their pay and maintenance. The experience required is that of medical treatment and organisation in military or civil hospitals. Special knowledge of infectious disease treatment would also be an advantage, as also a knowledge of colloquial French or German. Other things being equal, preference should be given to younger men or those who have previously suffered from typhus. The medical officers employed could be placed by the representative of the League in Poland in civil or military hospitals or in other special posts, as circumstances require. They should be guaranteed reasonably good conditions of living and opportunities for really effective work; the representative of the League should be in position to make necessary stipulations on this matter before the services of the doctor are given to the department or organisation concerned."

Further suggestions for the development of the Polish Red Cross Society are made in the report, which is prefaced by an introductory statement by Sir David Henderson, the secretary-general of the League, from its office in Geneva.

HEALTH IN FACTORIES AND WORKSHOPS:

ANNUAL REPORT OF THE CHIEF INSPECTOR FOR THE YEAR 1918.[1]

THE report of the Chief Inspector of Factories for 1918, the first report of any size issued by him in recent years, is a more than usually interesting document. It summarises much that occurred during the war, and herein appeals to the reader rather as the echoes of a far-off storm; but it also sets out in detail lessons learnt from war-time experience, and holds out a greater promise of industrial improvement, which is even now taking place, than we have found in any previous report. The form of the report follows that introduced just at the end of the pre-war period, and deserts the formal and often somewhat desultory account of the routine of official work to which we had become accustomed, and which often so confused the reader that he could with difficulty see the forest for the trees. There are eight chapters by experts, each dealing with separate subjects; and, instead of a mass of undigested statistical data as of old, there are presented readable and considered accounts, backed by instances, of the trend of affairs in relation to such matters as hours of labour, accident prevention, welfare and continuation classes. We hope this method of permitting the use of brains in the presentation of official information will be continued in future years; for we feel confident that this report will be more widely read than many of its predecessors.

[1] H.M. Stationery Office. (Cmd. 340.) Price 9d. net.

Reduced Hours and Increased Output.

Mr. R. E. Graves's article on hours of labour must attract attention at the present moment. Instance after instance, chosen from a great variety of trades, is given of reduced hours with maintained or increased output; and with what is of even greater importance, reduction in lost time and sickness. The introduction of the one-break day and the abolition of before-breakfast work is proving a success even in the textile industries. In one typical case, for instance—

"The net weekly hours were reduced from 55½ to 49, and the starting time was altered from 6 A.M. to 8 A.M. Opportunity is given for refreshment for workers who do not get a proper breakfast at home. The output is said to be quite up to the old standard. On coarse counts it is better, but on the finer counts it is not so good. Bad time-keeping has almost entirely disappeared, and the health of the workers has improved."

In another case with similar reduction of hours—

"The output at first fell in proportion to the reduction in hours, but it gradually rose during the following four years, till it reached the old maximum, which has been maintained ever since. The cost of production remains about the same as before, time keeping has improved, and absence from sickness has been reduced."

Similar results are stated to have been obtained at soap factories, engineering establishments, and match factories. The boot and shoe trade have adopted the 48-hour week with success; and one Rossendale firm found—

"The output did not fall off when the hours were reduced from 55½ to 48, and even on the 46½-hour week it has been fairly well maintained. Cost of production remains about the same."

This result was accompanied by a considerable reduction in cases of sickness, especially among females, which is attributed by the firm to working shorter hours and to giving a cup of tea morning and afternoon. "It is clear," says Mr. Graves, "from the facts stated that the early morning work is generally unprofitable owing to the large amount of time lost, and it is also apparent that hours can be very considerably reduced in many industries without reducing output or increasing the cost of production."

The Two Day-shifts System.

He also sets forth clearly the advantages of the two day-shifts system which has been so ably advocated by Lord Leverhulme, but which is to-day not legally permissible for female and juvenile labour:—

"(1) It increases the volume of available employment, which at the present time is most urgently necessary—particularly in the case of women. ..... (2) It affords a means of increasing the total national production which is essential to the restoration and maintenance of the national prosperity. (3) At the same time it decreases the cost of production. (4) It obviates overtime."

We would like to read between the lines when Mr. Graves writes: "It would probably be adopted more generally if it were likely to be permanently legalised," and to express the hope that the intention is to introduce legislation at an early date.

Labour-saving Appliances.

The introduction of labour-saving appliances, discussed by Mr. Stevenson Taylor, is, from the point of view of industrial fatigue, closely associated with reduction of hours. In the future—

"It is unlikely that the worker will be content to perform continuously work which involves heavy lifting, straining, or tugging, with possible risk of accident due to over-straining, when such work can be performed quite easily by means of mechanical appliances. On the other hand, the employer will naturally adopt any appliance which tends to increase output, reduces the cost of production, and possibly also reduces the risk of accidents to his workers."

An extensive introduction of labour-saving devices has been taking place, due to:—

"(*a*) The advent of women into many industries where their limited physical powers tended to place them at a disadvantage as compared with men; (*b*) the necessity for economy of manual labour owing to its scarcity and increasing cost; (*c*) the massed production of articles of the same size; (*d*) the mass production of articles, such as shells, of a form which readily lends itself to simple mechanical methods of handling and transport."

The increased employment of women has led to the provision of lighter barrows, smaller spades and other tools, and has caused attention to be paid to adjusting tables and benches to the height of the workers. Only good can come from such care which in the past has been rather conspicuous by its absence; and the information given of new forms of hand-trolleys, electrically-propelled rail-less vehicles, and overhead runways for the transport of material from room to room shows that the question of labour-saving is to-day a pressing one.

Accident Prevention.

The chapter on accident prevention by Mr. G. Bellhouse is refreshing in its recognition that, important as are the fencing of machinery and the use of guards, "the reduction of accidents to be effected by this means only represents a very small proportion of the whole." In previous reports the impression has been given with almost wearying reiteration that accident prevention was only to be effected by mechanical devices; but now a new spirit is abroad which perceives that the psychology of the workers themselves is the important factor, and that—

"A very large number of accidents occur through the neglect of simple precautions on the part of workers, which is often due to the want of training, defective organisation, or absence of discipline in the factory. Probably more accidents are attributable to these causes than to direct breach of any requirement of the Acts. ..... These are cases in which the factory inspector can play but a small part. If a real reduction is to take place, it can be effected only by the joint effort of employers and workers in each individual trade and factory. The remedy, then, is undoubtedly to be found in a wide extension of the system of safety committees which have been attended by so much success in the cases where they have been tried."

The establishment of such committees is advocated, and their constitution and functions discussed. In one factory alone accidents were in one year reduced by 50 per cent.; in America we are aware that even more striking results have been obtained, and we rejoice that at last in this country the value of action on these lines has received official recognition and the promise of organised propaganda.

Treatment of Injuries.

The subject of the treatment of injuries, dealt with by Dr. J. C. Bridge, is cognate to the prevention of accidents. In this section of the report the development of factory ambulance stations is referred to, but we regret that greater stress is not laid on the way in which the use of these stations is extending outside what was originally intended, until they are coming to be industrial clinics. We should also like to have found reference to the organisation of ambulance corps coöperating with the safety committee; for there can be no doubt that treatment, like prevention, will have to be popularised to become effective.

Electricity in Industry.

The enormous increase in recent years in the use of electricity in industry is described by Mr. G. S. Ram. The account encourages the hope that some now alive may see our industrial centres freed from their pall of smoke and the heavy infantile mortality with which it is associated. Everything good, however, has its dangers, and the use of electricity is no exception. But Mr. Ram's statement that, notwithstanding the expansion which has occurred, the number of electrical accidents has not increased is reassuring, and is eloquent testimony to the good work he has done in getting new installations made as far as possible "fool-proof." Yet electrical accidents will occur occasionally, and the warning he again addresses to the profession is timely. He urges on them not to pronounce too readily "dead" those apparently lifeless from electric shock, but rather to insist on the prolonged continuation of artificial respiration. In this matter he claims, and probably justly, that "the medical profession generally is woefully ignorant." We published a letter in this journal in 1912 (vol. ii., p. 1539) from Dr. R. Morton on this subject, the substance of which still holds good, in which he pointed out that—

"Death from electrical shock is only an apparent death at first, and whatever the conditions or severity of the accident there is practically always a time, varying from a few moments upwards, during which it is possible to resuscitate the victim by artificial respiration if resorted to at once. Artificial respiration must be persevered with for at least two hours, or until the patient revives; in many cases it may be only a few minutes."

Industrial Welfare.

The subject of industrial welfare is reported upon at some length by Miss Anderson, who traces the past history of the

movement, its sudden war-time development, and foreshadows its future possibilities. To those unacquainted with the subject this chapter will be interesting reading, as it tells of much good work done in a field of preventive medicine till recently neglected. We cannot help regretting that the writer recognises so little the essentially medical side of her subject. No one ever thinks of infant welfare apart from its medical aspect; but there is a tendency here to treat industrial welfare as something *sui generis* to which medical service is a minor appendage. This way danger lies; much in welfare is yet to be proved and tested; and, if appeal is not made to the medical scientist and to research, mistaken philanthropy may do much damage and harm. A priori deductions as to what ought to be beneficial without appeal to proof are to-day the rocks upon which this excellent ship may founder. The medical staff of the factory department wants strengthening, so that it can pay some attention to this most important side of public health. A staff of two medical inspectors to supervise the health conditions of some eight million workers would be ridiculous were it not a national reproach.

Industrial Poisoning.

The chapter written by Dr. T. M. Legge is devoted to industrial poisoning, the only branch—and that a small one—of industrial medicine he and his colleague are numerically strong enough to deal with. Lead poisoning, of which there were 1058 cases in 1900, only claimed 144 victims in 1918, and many of the cases were only of slight duration. This reduction seems fully to justify the statement that "on the practical side little more is to be learned as to how lead poisoning is caused, and it can be taken as axiomatic that all risk lies in inhalation of dust and fume. These removed or prevented there will be no lead poisoning." The way in which "phossy jaw" (phosphorus poisoning) reappeared, after its extirpation following upon the Yellow Phosphorus Match Act, owing to the call for this poisonous substance for the manufacture of certain munitions of war, is described. Arsenical poisoning also, particularly due to arseniuretted hydrogen and to arsenic trichloride (for the purposes of chemical warfare), increased for the same reason, and the opportunity was seized of having pathological research carried out by Professor S. Delepine. Details of his findings are given which are of some importance, for they suggest that arseniuretted hydrogen when inhaled "produces changes in the cells of the liver and kidneys, and that the symptoms are in some measure due to these changes." Hitherto the action of this gas has been regarded "as due to the action of the gas on the blood, which breaks down the red blood cells and is followed by failure, partial or complete, of the liver and kidneys to eliminate the d bris." This piece of research establishes the early links in the chain which, if continued, terminates, in some cases of arsenical poisoning, in toxic jaundice. An outbreak of poisoning from arseniuretted hydrogen in a submarine crew, fortunately with no fatalities, due to the presence of 0·2 per cent. of arsenic in an accumulator plate, disclosed a previously unsuspected danger. Such cases, however, are rare, and the mode of their occurrence is now well understood—viz., the generation of hydrogen in the presence of arsenic which, being only an impurity, perhaps in the iron of a shovel, may escape recognition.

Industrial Anthrax.

Industrial anthrax is dealt with at an almost undue length when the number of fatalities attributed to it (an average of 9 6 per annum for the past ten years) is kept in mind. We hope that even this small mortality may be abolished when the wholesale disinfection of possibly contaminated wool is established; and the process which has been evolved is applied also to horsehair. It consists in "agitation for 20 minutes in warm water containing soap solution and a little sodium carbonate, assisted by squeezing through rollers, subsequently treating the wool in a bath of warm water containing 2½ per cent. formaldehyde, again squeezing through rollers, and finally drying in a current of hot air."

Interest attaches to the remarks on cases of poisoning from fumes of petrol and of benzol, since these spirits are being so largely used by the general public for motor transport. Benzol causes "hæmorrhages from the mucous membrane of the gums and nose as an early symptom and one that can safely be used as a guide for the purpose of exclusion from work"; and safety lies in free ventilation, or where possible in handling the spirit in the open air.

Epitheliomatous Warts.

The occurrence of warts which may become epitheliomatous is reported as continuing in the manufacture of briquettes, especially in South Wales, and in shale oil works in Scotland. Considering the attention devoted eight years ago to the need for regulations for the prevention of this disease, and the research then carried out, this is distinctly disappointing. We hope the subject will be reconsidered at an early date; the disease is not, it is true, widespread; but investigation into the exact origin of any form of malignant disease may result in throwing light on the greater mystery underlying the origin and steady increase of cancer in general. The part played by the products of vegetable distillation in giving rise to industrial dermatitis, warts, and epithelioma, not only among pitch and shale oil workers, but among chimney-sweeps and agriculturists who handle soot, among tobacco-smokers, and those who handle aniline, naphthylamine and their homologues, and benzidine, calls for organised investigation at the hands of the Medical Research Committee.

A STATE MEDICAL SERVICE.

BY J. NORMAN GLAISTER, M.R.C.S., L.R.C.P.

THE requirements of a satisfactory State Medical Service are: (1) That it shall satisfy the need of the industrial classes for efficient medical attendance at a price which they are economically able to pay; and (2) that it shall satisfy the need of medical men for honourable work at a wage sufficient for their maintenance. It is quite true that the public is not an infallible judge of its own needs, just as it must be admitted that the medical profession does not always know what is good for itself; but it is certain that any system which ignores the desires either of the public or of the doctors is foredoomed to failure, and it is probable that in both cases the desires of those concerned form the most reliable starting-point for the determination of their real needs.

Desires of the Worker and the Doctor.

The worker desires: 1. To be attended by a doctor whom he knows and trusts. 2. To be seen without delay. 3. To be seen, at his own option, either at a convenient consulting-room or in his own home. 4. Treatment embodied in some concrete form—a bottle of medicine, a dressing, an electrical or other application, a printed diet table. 5. The assurance that his doctor knows all that is practically necessary of his profession. 6. An air of complete self-confidence on the part of his doctor. 7. A right to the services of a recognised expert if he loses confidence in his doctor, or otherwise "gets the wind up." 8. Some form of insurance, so that the incidence of a doctor's bill may not coincide with a period of financial depression resulting from illness. 9. A payment which seems to him reasonable.

The doctor desires: 1. Work which can be done quickly and efficiently without strain or friction—i.e., work objectively worth doing. 2. Work which demands the greatest effort of his best faculties—i.e., work subjectively worth doing. 3. Opportunities to better his position by effort. 4. Definite hours of duty, reasonable leisure and holidays, and time for study. 5. Bread-and-butter. 6. Housing accommodation for himself and his family. 7. Provision for his own old age and for the future of his dependents.

The Ideal Medical Service.

We may now attempt the construction of a theoretically ideal medical service in order to see how far it may be possible to reconcile the claims of such a service with the practical requirements above detailed.

It is obvious that the work with which we are concerned is essentially mental work, and that even in operative surgery manual dexterity is of quite secondary importance. It is equally obvious that no one mind can operate effectually over the whole field of modern medical practice, and that in any efficient medical service there must be specialisation of function and division of labour. The problem, in fact, becomes one of herd-psychology, and is concerned with the organisation of mental team-work. A scheme devised in

accordance with these principles will work out roughly as follows.

The Junior Medical Officer.

The M.O. will enter the service as soon as practicable after becoming qualified to practise, and his function will for some years be that of a general practitioner. I am not here concerned with the question of salary, but the initial salary would probably be *equivalent* to about £500 of money at its present value. The earning of this salary will be a frankly commercial transaction, the employee contracting in return for his salary to work for a definite number of hours, and to keep his work up to a minimum standard which will be defined as rigidly and accurately as possible. This standard will not be high, but will be designed to be easily attainable by any qualified man; if any M.O. fails to get through the minimum amount of work, or commits errors proved by the experience of others to be easily avoidable, his attention will be drawn to the routine devised to enable him to overcome his difficulties, and if he still remains inefficient he will be dismissed. In the arrangement of this part of his work no account will be taken of the stultifying effect of routine, beyond the limitation of this kind of work to a maximum of perhaps six hours a day; the considerations to be always kept in view in this department of work are that there are every day a number of patients with every-day diseases to which it is necessary to apply every-day treatment, that this is the first charge upon the time of the service, and that in order to find time for more advanced and interesting work machinery must be devised to deal with it quickly and efficiently.

It is for this utilitarian purpose that the State buys the services of the junior M.O., and it will be the business of the State to expend those services in the most effective and economical manner possible. This business of the purveying of standard medical attention to commonplace cases will be organised like any other efficiently-organised business with a view to the immediate and obvious requirements of the work to be done, and the M.O. will be expected to fit into his place as a cog in the machine.

But the M.O. is much more than a cog in the machine; he is also the owner of a vigorous and inquiring mind upon which the State must in great measure rely for the advancement of medical knowledge and for the conduct and direction of the medical service in the next decade; more important still, he is a citizen with needs—physical, mental, and moral—of his own, and he has human relationships with his patients and with others. The value of his work in these higher capacities cannot be measured by any standard which we possess, and the work cannot therefore be bought with money; any attempt so to buy it is foredoomed to chaos and failure.

It will be made clear to the newly appointed M.O that he is expected to continue his medical education, and that time, laboratories, libraries, and expert advice are at his disposal for this purpose; but it will be made equally clear that the payment of his salary is dependent solely upon the practical efficiency of his routine work, and that so long as this is maintained his salary will continue to be paid. In the course of his higher education he will almost certainly take some part in research, which may prove to be of great value, and he will necessarily do practical work of some value in special clinics and laboratories; but he will be expected to carry the spirit of the great teaching hospitals to these labours and to ask for them no reward beyond the interest of the work itself and the knowledge that it is appreciated by his colleagues and his patients.

Somewhere about the age of 30 many of these general practitioners will become dissatisfied with their work. A man has developed an interest in some more specialised line of work, and grudges the hours devoted to the old familiar routine. Moreover, he has not of late found time to keep himself up to date in all the branches of his work, and realises that his work is becoming inferior in some respects to that of more recently qualified men. He accordingly applies for promotion to a higher grade, and if in his (voluntary) higher work he has shown a normal degree of aptitude he receives this as a matter of course.

Investigators, Operators, and Teachers.

In the higher grade there will be investigators, operators, and teachers. The teachers will be those who, while desiring a position of greater authority and responsibility, yet retain an effective grasp of the whole of general practice, and feel no desire as yet to specialise along any of the routine paths laid down for the specialising officers of the service.

The line between investigators and operators will not correspond exactly with the conventional distinction between physicians and surgeons. The investigator will cultivate the careful mind; it will be his responsibility to see that no effort is spared to reach a correct diagnosis; a mind open to any suggestion, even though apparently irrelevant, a readiness to explore side-tracks and to admit that his own way may not be the best way, to revise his opinion even at the eleventh hour, and, in the absence of sufficient evidence, even to refuse to make a decision and to call for help—these are virtues in the investigator, vices in the operator. The operator, on the other hand, will cultivate a decisive mind. His will be the responsibility for vigorous and effective treatment, accurately applied at the proper time; confidence in his own ability to deal with the case, the courage of his convictions, an obstinate refusal to be delayed by interesting trivialities, or to be weakened by opposition, or to be troubled by doubts—these are all of the highest value to the operator, whether engaged in the application of surgical or of medical treatment.

The man who is to teach has now to qualify himself as a leader of the herd of general practitioners. His function now will be to keep himself informed of the most modern practice and the latest results of research in every department; becoming thus a connecting link between the different departments, he will often be able to help in research by bringing ideas lying loose in one department to the service of another, and as a "locum" of universal valency he will often be of the greatest assistance to smooth working, but his use in both these capacities will be quite incidental; his essential business will be to purvey to the general practitioners any information of which they may be in need, to revise the routine of general practice from time to time by the light of advancing knowledge, and in general to supervise and help the work of his department.

The investigator will be required to make himself proficient over the whole field of diagnosis; even if he has already acquired some reputation as an expert in a special department, it is entirely desirable that he should study the science of exact diagnosis in its broadest aspect. The routine work by which he earns his salary will now be the systematic establishment of an absolute and detailed diagnosis in every case sent to him (i.e., every case whose adequate diagnosis is not provided for in the routine of the "G P." department); if there is room for doubt, or if a greater accuracy in detail than he can attain to is desirable, he will ask for the help of that member of his department or senior investigator best able to give it. He will continue as before to do unpaid work of a higher and probably more specialised character, and as this work is probably by now of a useful quality, and also has a more definite relation to his routine work, it will be sound business to decrease the number of hours of his routine work and to encourage him to spend more time over his special work.

The operator will also be at first one who applies treatment in general, and he will have to make himself reasonably proficient in all branches of treatment; but it is likely that it will be found desirable for him to limit the field of his practical activities at a quite early stage. In other respects his activities will be ordered on lines parallel to those of his investigating colleague. (In dealing with a difficult case the investigation will probably be nominally in the hands of one investigator, but he will call many of his colleagues into consultation and so share the responsibility with them; in the application of treatment the responsible operator will equip himself with any necessary special information, choose his assistants, and thenceforth assume unquestioned control of the case. This difference of method, like the earlier specialisation of the operator, will be a recognition of the contrast between the openness of mind necessary for safe diagnosis and the obstinate decisiveness which is so essential to effective treatment.)

The officers of this grade, who continue to make use of their opportunities of learning, will in due course again find themselves overtaken by the advance of knowledge. The investigator will realise that his absorption in one branch of diagnostic work has led to his neglect of another branch, and that some curtailment either of his routine work or of his special voluntary work is imperative; and he will

accordingly be promoted to a higher grade of more specialised routine work. The hours of compulsory routine work will be yet further reduced.

The Standard of Efficiency.

In this way he may continue to the top of the tree, each upward step being accompanied by a decrease of routine work and increased opportunity and encouragement for special scientific work. As the medical officer grows older he will become progressively less the paid craftsman of a department and more the honoured servant of the public; while the field of his professional activity grows more narrow, his work within that field will become more valuable and more far-reaching; in the highest grade of all he will do no routine work, but will busy himself with research or its application in the manner that seems to him most useful.

The general investigator or the general operator who has qualified for promotion will be allowed if he so desires, instead of narrowing his field, to become a teacher and supervisor and coördinator of his department, exactly as on the lower plane of general practice. He may remain permanently a teacher, he may at any time decide to follow one of the recognised special lines of his department, or he may strike out a new line of special work.

Remuneration throughout the medical service will be paid for the routine work; it will increase automatically with length of service and independently of promotion; and it will be paid so long as the medical officer continues to do his routine work satisfactorily, and no longer. There will probably be either a special "children allowance," or the free use of schools, playgrounds, rural centres, &c., for them. The man whose object is to make money may do so by working hard and earning early promotion, and so attaining a position where his short hours of routine work will enable him to devote time to private practice or other remunerative work. If in this way he sacrifices his professional efficiency he will be dismissed as inefficient; in any case, it is not likely that a man who substitutes private practice for advanced work will qualify for the highest posts in the service, but if any exceptional man is able to do both he need not be prevented from doing so. In general, the man who is keen about his work will make it his hobby as he grows older, and when he reaches the highest grade will draw his salary for such work as he cares to do; if he chooses to retire he can continue to draw his salary as a pension.

Conclusion.

I believe that such a service would attract many of our best men. It would provide the doctor with everything above noted as representing the wishes of the professional man in search of a career.

Most of the desires of the patients could also be met. Those patients who especially like to be seen by "their own doctor" would probably become attached to a man whose interest in his patients was more human than professional, and whose intention it was to remain for life a "G.P." Good organisation of clinics served by 12 or more medical officers would enable patients to be seen without delay either at the clinic or at their homes. Treatment in a concrete form—the "bottle of medicine" idea—could be provided well enough under such a system; but useful work might be done by occasional public lectures, which would teach the public to be more intelligent patients. The practical efficiency of the doctor would be increased, while the knowledge of his close association with an up-to-date service would enable him to wear more easily that cloak of infallibility which the patient values so highly. The services of experts would be easily available. Insurance could be provided as under the present Health Insurance Act, the worker paying nothing directly to the doctor; and the service, while more efficient, need cost no more than attendance under the existing system.

This scheme would require very considerable modification in order to render it workable in rural districts, but there is no reason why it should not be applied at once, on an experimental scale, in those densely populated areas where the need for medical care is most urgent.

LITERARY INTELLIGENCE.—The Cambridge University Press announce the forthcoming appearance of a book by Dr. S. Gurney-Dixon entitled "The Transmutation of Bacteria."

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Board of Health: Establishment of Consultative Councils.

A DRAFT of an Order in Council establishing consultative councils under the Scottish Board of Health Act will be laid before Parliament when it reassembles next week. In terms of the Act, before the Order can be made and come into operation the draft of the Order must lie before each House for 30 days on which the House is sitting. The Order has been in draft for some time past, but during the Parliamentary recess the necessary procedure for bringing it into operation could not be carried through. It is proposed under the Order to set up four consultative councils in Scotland to advise the Board on the following matters respectively: (1) medical and allied services; (2) National Health Insurance (Approved Societies' work); (3) local health administration and general health questions; and (4) Highlands and Islands. The members of the councils are to be appointed by the Board, and are to be persons having practical experience of the matters for the purposes of which the particular council is established, and due regard is to be had to any special interests (including those of local authorities and of labour) which may be involved. The membership of any council is not to exceed 20, and each council will include persons of both sexes. Provision is made for the council's appointing committees for special purposes and for the inclusion in such committees of persons who are not members of council. The Board may convene joint meetings of any of the councils or committees of the councils. The councils are to meet at such times as they may, subject to the approval of the Board, determine, but it is specially provided that each council must meet at least three times in each year. The functions of the councils are set forth in the draft Order, and include inter alia the consideration of and reporting upon questions which may from time to time be referred to them by the Board, including questions arising on draft Orders in Council, regulations, orders, &c., and questions involving considerations of important principle and scientific difficulty affecting or incidental to the health of the people. Subject to the provisions of the Order each council has power to regulate its own procedure.

The Royal College of Surgeons of Edinburgh.

At a meeting of the College held on Oct. 15th Dr. George Mackay was appointed President; Dr. R. McKenzie Johnston, Vice-President; and Mr. Alexander Miles, secretary and treasurer. Dr. George Mackay, the new President, was for many years ophthalmic surgeon to the Royal Infirmary, and University lecturer on ophthalmology. He is now consulting ophthalmic surgeon to the Royal Infirmary, and a representative of the Royal College of Surgeons on the board of management.

Scottish Universities: Opening of the Winter Session.

The principal feature of all the universities this winter is the great increase in the number of students attending, and the consequent straining to the utmost of available accommodation and material for teaching. All the universities alike have had to select from applicants for admission those whose claims deserved priority, preference in all cases being given to men who have been on service with the forces. Many of the junior applicants are having meantime to postpone commencing the study of medicine, and not a few are occupying the waiting period by taking classes in the faculties of arts or science. Much of the present pressure is occasioned by the fact that practically five years of "freshers" are seeking entrance simultaneously.

At Edinburgh on Oct. 14th, Sir Harold Stiles, the new professor of clinical surgery, gave his inaugural address on "Reminiscences of a Surgical Training." After referring to his own early education, he emphasised above all the importance to the surgeon of a thorough knowledge of anatomy, and the advantage to the student of the teaching of surgery from the anatomical standpoint. Now that text-books had reached such a standard of excellence he thought that much of the time spent in systematic lectures would be better devoted to practical demonstrations in ward and laboratory. Referring to the lessons of the war, Professor Stiles said that the chief was the value of team-work by younger men under

the direction of those of wider experience, and he thought that it was largely to this combination that many of the advances in the treatment of wounds and fractures were due.

On Oct. 17th Professor F. D. Boyd gave his inaugural address on "Clinical Medicine in Edinburgh in the Past and Present." The teaching of clinical medicine in Edinburgh was intimately linked up with that of the Royal Infirmary, the "Tounis Colledge," and the Royal College of Physicians. The latter body was founded by a small number of accomplished physicians who had been trained abroad, and a Charter was obtained in 1681. The College first appointed two of its number to serve the poor of the city, and in 1727 hired a small house which was converted into a temporary hospital with four beds. The town owed a great deal to its then chief magistrate, George Drummond, who was keenly interested in the foundation of the Royal Infirmary. In 1736 a Royal Charter was obtained and a plan drawn up for a hospital to accommodate 226 patients. When the infirmary was founded the town council appointed four professors of the Medical Faculty to deliver lectures. The first to give clinical instruction in the infirmary was John Rutherford, professor of practical physics in the University; a great debt was also owed to John Hughes Bennet, professor of medicine and clinical medicine from 1848 to 1874, who might be regarded as the founder of the present method of teaching. An epoch in clinical teaching came when the present Royal Infirmary was opened, described at the time of its opening as the largest and most up-to-date hospital in the kingdom. Since then many additions had been made, but extensions were required still to enable it to maintain its great traditions. Professor Boyd emphasised the importance of bedside work, for it was in the wards that practical physicians were made, and not by listening to lectures. By the present method of keeping a careful record of each student's work, it was hoped to get a more accurate estimate of his knowledge and application than could be obtained by examination alone.

General Medical Council: Election of Direct Representative for Scotland.

Dr. Ebenezer Duncan, of Glasgow, has issued to the members of the profession an address in support of his candidature, in which he outlines his views on medical education and on other matters of general interest. Dr. Duncan has been in general practice for many years, and has therefore first-hand experience in the problems of the practitioner; he has also practical knowledge as a teacher and examiner in medical subjects. The principal reforms which he at present advocates are:—

1. A minimum age limit of 18 years for registration as a medical student.
2. Raising the standard of the Preliminary Examination of all medical students to that of the Preliminary Examination for Arts and Science Students in the Scottish Universities.
3. The elimination from the medical curriculum of Elementary Chemistry Botany, and Physics, which should in future be studied in secondary schools. An examination in these subjects should be passed by the student before commencing medical studies.
4. Less systematic lecturing and more practical teaching, including Compulsory Tutorial Classes.
5. The elimination of systematic lectures on Materia Medica, the time so obtained to be devoted to instruction in Pharmacology, Toxicology, and Therapeutics.
6. Toxicology being relegated to the teacher of Pharmacology, one-half of the session of the class of Forensic Medicine should be devoted to instruction in Preventive Medicine and Public Health.
7. Clinical classes to consist of not more than 20 students. Where infirmary accommodation and clinical lecturers are insufficient to permit of this, the clinical material in Poor-law hospitals and more clinical lecturers should be utilised.

Lastly, with regard to the present system of Examination for Qualifying Degrees and Diplomas in Medicine and Surgery, evidence given by their teachers of excellence in class work and in class examinations should be taken into consideration by the Examiners in grading the examinee for pass marks, especially in doubtful cases.

The Candidature of Dr. Norman Walker.

Dr. Norman Walker addressed a meeting in the Medico-Chirurgical Hall at Aberdeen on Oct. 16th in support of his candidature for the General Medical Council. Referring to the impending elevation of the standard of the preliminary examination, he said that he anticipated no long delay before the next step was taken under which students would be allowed to sit for examination in elementary chemistry, physics, and biology immediately on entering the University. Speaking as a member for several years of the Penal Cases Committee of the Council which was being criticised in certain quarters because at its direction the registrar had written to certain medical men, against whom complaint had been made, informing them of the fact, Dr. Walker stated that the letters were written wholly in the interests of the doctors with the result that, in the great majority of cases, nothing further was heard of the complaint. He felt sure that the sore feelings had been based on misunderstanding. In conclusion, Dr. Walker expressed his regret at the breakdown of the arrangements, entered into between the authorities and the professional committee on armistice day, under which the young graduates who had been released from combatant service in order to complete their medical education would automatically have joined the Army. He felt that it was now for these men to offer on their own initiative the six months' service which the Army Medical Department now required. He was authorised to say that anyone in or out of the Army who signed the new contract would be released that day six months in whatever part of the world he might be.

Addressing a meeting of electors in Dundee on Oct. 15th Dr. Walker raised the question of the position of the medical profession in the event of future wars. He advocated the appointment by the Government of a commission, on which the Services and every section of the civil medical profession should be represented, to survey the whole problem of naval, military, and civil medical service in the event of another war, and to draw up a skeleton plan combining the maximum of utility with the minimum of waste.

Bequest by the late Professor Trail to the Aberdeen University Library.

At a meeting of the Aberdeen University library committee held on Oct. 16th the chairman referred to the great loss sustained by the library through the death of Professor J. W. H. Trail, who had acted as curator of the library since 1889. The librarian intimated that Professor Trail had bequeathed to the University "all the collections and the books not already in the library of the University of which I die possessed."

Oct. 20th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish Public Health Council.

THE address with which Dr. E. Coey Bigger inaugurated the first meeting of the Irish Public Health Council, of which an abstract appeared in THE LANCET of Oct. 18th (p. 702), has aroused hopes that in Dr. Bigger we have a reformer capable of taking wide views. In his survey of the fields of activity of the council he has omitted little that could reasonably be included; if he has not defined the lines on which the various problems should be met, his reticence was probably due to the intention not to appear, at the outset, to wish to dictate to the council, which has very wide powers. Indeed, it can advise the Minister of Health in whatever way it thinks right. Dr. Bigger's address, at any rate, reveals the intention of the council not to content itself with minor amendments to existing statutes. It is recognised that Ireland requires a building up of the whole health administration. But allowing that Dr. Bigger could at the moment hardly do more than run an eye over the field of the council's future activities, one or two of his references have been regarded as unnecessarily vague. In particular, the problem of the support of the voluntary hospitals must be recognised as one of urgency. The hospitals are necessary to the public welfare, and their present principle of maintenances has broken down. Dr. Bigger's suggestion with regard to possible support by paying patients will not meet the case. No doubt in the past many patients who might have contributed something to the hospital were treated free. But in a city like Dublin, where there is little industry, and most of the labour is casual and unskilled, there is a large element of the population always on the verge of starvation. People of this class cannot contribute anything for their medical treatment, and if the voluntary hospitals reserve their beds for paying patients this large class will either be left at home unrelieved or will be forced to the union hospitals. The problem is pressing, and the failure of the Government to maintain the hospital in Dublin, for whose upkeep it is responsible, has rendered it critical not only for the House of Industry

Hospitals, but for all the other hospitals in Dublin. This is a position that the council must face without delay.

It may be that, although the constitution of the council is open to just criticism, there is some misunderstanding as to its relation to the medical profession. Of the three unofficial medical members of the council two were chosen by the Chief Secretary from a list submitted by the Irish Medical Committee, which is the recognised executive of the Irish medical profession, as far as any body is so recognised.

The Belfast Medical School.

The winter session, 1919–20, began at the University on Tuesday, Oct. 14th, when the various classes, which are unusually large, opened, and the two new professors—Dr. Thomas Walmsley (anatomy) and Dr. A. W. Stewart (chemistry)—were received in the usual boisterous way by the students. At a meeting of Convocation held on Oct. 15th eight graduates were elected as representatives on the Senate, of whom the following are members of the medical profession: Lieutenant-Colonel A. B. Mitchell, Dr. W. Calwell, Dr. J. W. Browne, and Dr. R. W. Leslie. Colonel Mitchell takes the place of Mr. T. S. Kirk, who did not seek re-election. At the Royal Victoria Hospital, Belfast, Colonel Mitchell delivered the opening address to the students on Oct. 16th. After referring to the duty the students owed their hospital patients, Colonel Mitchell said the war had been the means of forming for the first time an idea of the actual state of the health of the country, which showed that of those presenting themselves for the Army only one man in three was placed in class A1. The health of the nation depended on the medical profession, and it was their duty to see that matters improved. Colonel Mitchell drew attention to two matters greatly affecting the health of the city of Belfast; the first was the manner in which meat was exposed for sale outside shops, dirty flies having access to the meat and spreading disease wherever they went. Further, he said, meat was conveyed about the streets on lorries in such a manner as to gather disease. Then there was, secondly, the conveyance of milk by rail. He had seen men with dirty hands emptying large milk cans. He thought there should be proper supervision of such things, and it was necessary for the medical profession to make recommendations to the corporation of Belfast. Finally, in reference to the question of a State Medical Service, he hoped if ever such a scheme did come it would be different from anything they were accustomed to in the Army or elsewhere. At its conclusion Colonel Mitchell was heartily thanked for his address.

Scarcity of Water in Ulster.

All over the north of Ireland there is still a great scarcity of water, especially in some of the towns, such as Armagh, Derry, and Belfast, due to the long-continued diminished rainfall. Taking Belfast, up to the end of September, only 20·06 inches of rain have been registered this year, as compared with 28·58 inches for the same period of last year, or 23·62 in the dry year of 1911. So far, the rainfall of this year is 3½ inches below that of 1914, and 8½ inches less than in 1918. The rainfall this year is less, moreover, than the average for the past 45 years by 5·10 inches. The rainfall in 1918 was 44·07 inches, whereas the average for the past 45 years was 36·10 inches, and the wettest year (1877) had a rainfall of 44·73 inches. In September, 1918, the rainfall was 5·89 inches, while it was only 3·21 in the same month this year. The present reduced supply to Belfast will have to continue for the present, but things would have been much worse had not the water commissioners, after the lessons of the previous dry years of 1911 and 1914, enlarged a number of existing reservoirs. As soon as the financial situation will allow, since the population of Belfast goes on increasing, the Commissioners will have to build their long-promised and huge reservoir at the Mourne Mountains.

Oct. 20th.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: THOMAS VICARY LECTURE.—In 1919 the Barbers Company undertook to provide an annual sum of £10 10*s.* for five years for the purpose of instituting at the Royal College of Surgeons an historical lecture in anatomy or surgery, to be called the Thomas Vicary lecture, the appointment of the lecturer being in the gift of the College. The first lecturer will be Sir John Tweedy.

Correspondence.

"Audi alteram partem."

THE BRITISH FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

To the Editor of THE LANCET.

SIR,—"What actually took place" at the Steinway Hall meeting can hardly be stated by persons who were not present, and when the representatives of the British Federation who write in your issue of Oct. 11th enter on this field, they deal not in evidence but in hearsay. I will not presume to pit my memory against their information, but will refer your readers to the accounts of the meeting which appeared in the medical journals of October, 1918. There it is plainly stated that the committee (1) was appointed "to further the election of medical men as Members of Parliament," and (2) was directed "to report to a subsequent general meeting of the profession." The committee has not discharged this reference, nor has it reported to a "general meeting of the profession." To say that it has done a number of things for which it had no authority, or that it sought some tribunal other than that to which it was pledged, cannot redeem its neglect of the one thing for which it was appointed; indeed, these unauthorised adventures are an additional condemnation. If the British Federation endorses and approves this curious fashion of dealing with pledges publicly given it is well to have the fact on record. It is suggested that now the Federation is in existence nothing relative to its origin matters. But surely it is important to know of any organisation whether it cultivates a high standard, or a modest one, in the interpretation of its promises.

Until the Steinway Hall Committee has either met its obligations, or has acknowledged its negligences and excesses, the British Federation cannot escape the shadow of this unhappy association. It is not, Sir, the irregularity of its birth which mainly excites suspicion; the flaw is rather in the qualified record of some of its sponsors.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 14th, 1919. C. O. HAWTHORNE.

To the Editor of THE LANCET.

SIR,—The executive of the Federation request the kind publication of the following communication from Sir Henry Morris, Bart., the original chairman of the Medical Parliamentary Committee.—We are, Sir, yours faithfully,

CHARLES BUTTAR,
Honorary Secretary.
N. HOWARD MUMMERY,
Organising Secretary.

The British Federation of Medical and Allied Societies,
1, Vere-street, Cavendish-square, W. 1. Oct. 20th, 1919.

[ENCLOSURE.]

8, Cavendish-square, London, W. 1, Oct. 16th, 1919.

DEAR SIR,—I have read in THE LANCET and *B. M. J.* of Saturday last the letter signed by yourself and two other office bearers of the British Federation of Medical and Allied Societies, and also that of Dr. C. O. Hawthorne. Dr. Hawthorne accuses the members of the Temporary Committee elected at the general meeting of the profession held at the Steinway Hall on Oct. 1st, 1918 (which committee soon adopted the title of Medical Parliamentary Committee), of having broken two pledges given at the general meeting. These so-called broken pledges he describes as follows:—

1. That the committee, having been appointed to draw up a scheme with a view to secure an increased medical representation in Parliament on the assurance that no executive action would be taken until the scheme had been approved by "a further meeting of the profession," had not fulfilled its pledge to report to such a meeting. He enumerates several "gratuitous exercises" of the committee "without the sanction of the meeting which called the committee into existence," which "exercises," he says, "cannot be accepted as a substitute for the particular engagement which the committee definitely undertook." Now the chief thing for which the committee was elected was to find out which medical men were willing to stand for Parliament, and to assist them as to their choice of constituencies, and in finding speakers to help them in their candidatures. This the committee did, so far as was possible in the very limited period between its formation and the date of the general election.

2. That the chairman of the original meeting "assured the meeting that the committee would not concern itself with the electoral affairs either of Scotland or of Ireland. ..... Yet at the general election the committee supported the claims of the candidates for the Scottish Universities constituency, and it coöpted a representative from a body which called itself the Scottish Universities Parliamentary Association." Your conjoint letter gave a somewhat distorted explanatory reply to the first charge, and no reply whatever to the second.

It must be admitted that the Temporary (or Medical Parliamentary) Committee did not call a further or second general meeting open to the whole profession such as that at Steinway Hall on Oct. 1st, 1918. The meeting at the Central Hall, Westminster, was no "further" or "second" meeting of that description. It was a first "conference of representative bodies," to which invitations were issued by the Medical Parliamentary Committee; and to this "conference," instead of to an open meeting of the profession, the past activities and proposed scheme of future activities of the committee were reported.

It was fully understood at the original meeting, as stated above, that the committee would proceed at once to assist medical candidates for Parliament at the approaching and at future elections. It broke no pledge therefore in at once setting about the purpose for which it was called into existence. But on considering the unfavourable experience of two other general meetings, held at the instigation of certain groups of the profession, which followed on the meeting of Oct. 1st, 1918, there was thought to be ample justification for the M.P.C. calling "a further meeting of the profession," as Dr. Hawthorne claims it was pledged to do, but in the form of a meeting, either of those who had taken the trouble to vote for the committee at the Oct. 1st meeting, or of representatives of the various organised medical societies and institutions, rather than summons, in the face of what had transpired at the two meetings just referred to, another meeting open to the whole profession. This decision was arrived at, you will remember, after the whole question had been fully considered and discussed by the M.P.C., and it would have been wiser, in my opinion, to have freely admitted in your letter the deliberate departure from the intention expressed at the Oct. 1st meeting, and to have defended and justified the course actually adopted by the committee.

Dr. C. O. Hawthorne is mistaken in his interpretation of the significance of the chairman's reply in regard to Scotland and Ireland. What the chairman said was that there was no intention, at any rate at the outset, of including either Scotland or Ireland in our English medical Parliamentary movement, because both these countries were prone to insist on having and organising their own independent societies. In no other way did the chairman commit himself as to Scotland and Ireland.

One of the candidates for the Scottish Universities constituency, to whom Dr. Hawthorne alludes—a resident in London—was elected on to the Temporary Committee at the general meeting on Oct. 1st, 1918, as a representative of the Royal Institute of Public Health. Naturally he was included in the list drawn up by the committee of medical men suitable for a seat in Parliament. The other candidate for the Scottish Universities constituency, to whom Dr. Hawthorne refers in his very reproachful and denunciatory criticism of the committee, was also a resident in London, and was also, of course, included in the same list. No other action whatever was taken by the M.P.C. in "the electoral affairs either of Scotland or Ireland"; neither canvassing nor platform oratory was rendered by the committee in any university or other constituency in either Scotland or Ireland.

What, then, becomes of the second charge of "broken pledges"?

Lastly, the gentleman described by Dr. Hawthorne as having been "coöpted a representative from a body calling itself the Scottish Universities Parliamentary Association" is also a resident in England, and he represented members of the association resident in England. As an advocate of the formation of a Medical Federation for Parliamentary purposes solely—and chiefly in the interests of the general community—I regret that Dr. C. O. Hawthorne was not thoroughly answered by you and your co-signatories, and that his charges of "breaches of promise" were not fully refuted. But if I may venture to say so without presumption, I think that in future the best, and only answer to give to carping and jealous critics of the Medical Federation as compared with other associations is the statement contained in the fourth and part of the fifth clauses of the "Summary" of my article, "On a Plea for Medical Unanimity and Public Spirit," published in THE LANCET of Feb. 1st, 1919.

I remain, yours very truly,

(Sd.) HENRY MORRIS.

PS.—I am writing as ex-chairman of the Medical Parliamentary Committee and as chairman of the general meeting of Oct. 1st, 1918, at which that committee was elected. You are at liberty to make what use you like of this letter.

The Hon. Sec. of British Federation of Medical and Allied Societies.

GENERAL MEDICAL COUNCIL ELECTIONS: THE ELECTION OF DIRECT REPRESENTATIVES FOR ENGLAND.

To the Editor of THE LANCET.

SIR,—At the request of the medical profession in Blackpool I have consented to be nominated as a Direct Representative for England on the General Medical Council, and my nomination form has been sent to the Registrar. It has received the support of 30 doctors in Blackpool; no refusals; more could have been obtained. It is significant, and I believe it expresses the views of many other divisions in regard to the action of the Association. The chairman, secretary, and representatives of the Blackpool Division were the first to subscribe their names and to canvass. My candidature is my earnest protest, which is supported by my nominators, at the action of the British Medical Association in again nominating all four of the Representatives for England. This practically excludes the free election by the medical profession of Representatives who are not members of the Association. The Medical Act of 1886 was intended to give equal opportunity for all medical practitioners to nominate and elect anyone eligible. Since the British Medical Association has adopted the policy of nominating all four no one has been, nor is likely to be, the free elected Representative of the medical profession in England. Acting as a caucus, it uses and abuses its power, which is not honourable and is unworthy of the traditions of the recent past of the British Medical Association. Their candidates have safe nominations: no great demand on their purses, time, or personal canvass. The *Journal* and a host of officials in all the branches and divisions are at their service free of expense. Before this policy was adopted the elections were full of interest and keen rivalry, but at the last election in 1911 the lowest successful candidate only received 7113 votes. This was less than one-third of the electors, proving that their action is causing widespread apathy, which will increase. This will be a pity.

I am, Sir, yours faithfully,

JOHN BROWN, M.D.,
Late M.O.H., Bacup.

Blackpool, Oct. 20th, 1919.

A PROTEST.

To the Editor of THE LANCET.

SIR,—I recently had occasion to send a patient to a consulting surgeon for his opinion. Instead of receiving it I learn that the surgeon has "popped" the patient in a nursing home and is about to operate for a fee considerably higher than I should have allowed my patient to pay had I been consulted. While full of admiration for the surgeon's business instinct, I venture to remind him, and those similarly gifted, that this method of rescuing patients from the hands of their own doctors is not without drawbacks; of which one, which may appeal to this sort of specialist most acutely, is that in the long run it does not pay. These specialists must not expect the general practitioner to go on sending them cases or to speak nicely of them to his colleagues and friends. In the present instance the probability of my utilising this surgeon's services in the future is, perhaps, somewhat remote; the probability of my mentioning the incident as widely as possible is perhaps less remote.

I should not venture to appeal to this class of consultant (fortunately still in the minority) on any other ground than one of plain business. Therefore, may I put it to them, say as one tradesman to another, does their method pay them in the long run?—I am, Sir, yours faithfully.

C. WILLETT CUNNINGTON, M.B.

Church End, Finchley, Oct. 21st, 1919.

ANKYLOSTOMA DUODENALE WITH PYLORIC OBSTRUCTION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Oct. 18th appears a paper by Captain H. K. V. Soltau, with an introductory note by Sir Charters Symonds, on the above subject, in which it is concluded that the association of hookworm eggs with dysenteric symptoms and an inflammatory pyloric tumour offers presumptive evidence that the hookworm was the cause of both; in other words, that symptoms referable to the colon and pylorus were directly caused by a parasite which, in spite of its specific name, inhabits, with possible but at the very best rare exceptions, neither of these regions.

In view of the fact that from 60 to 100 per cent. of the rural population of the tropics are infected with hookworms, medical men who have had much to do with these infections are more and more finding themselves unable to accept any causal relationship between infection and illness unless such relationship be capable of satisfactory proof. In the case under consideration the probabilities appear to be definitely against the validity of such connexion. That the infection had its usual definite but indirect effect upon this man (as it is doubtless having upon thousands of other Englishmen demobilised from the tropics and subtropics) cannot be doubted. The excuse for this criticism is that the proved losses of life, health, wealth, and happiness due to even light infections with these parasites are in the aggregate so terrible, and in the individual so definitely harmful, that it is little less than a calamity to risk the weakening of a strong case for the necessity, wherever possible, of their extermination, by attributing to them any damage which cannot be substantiated.—I am, Sir, yours faithfully,

CLAYTON LANE, Lieut.-Col., I.M.S.

Guildford, Oct. 18th, 1919.

THE CONTROL OF VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—In your article on the control of venereal disease appearing in your issue of Oct. 18th you point out the insufficiency of definite and convincing information advanced by either party to the controversy on prophylaxis. It is now possible to draw your attention to the authentic figures with regard to venereal disease in the Army, of which I have been some time cognisant but unable to use because they were not public property.

If you will refer to the report of the Sanitary Congress held at Newcastle in July, which is published in the September report of the Royal Sanitary Institute, you will find there that Lieutenant-Colonel L. W. Harrison states that the number of cases per 1000 of venereal disease in the Army remained practically constant during the whole of the war, notwithstanding the fact that during its latter years most strenuous efforts were made to diminish the number of such cases of illness both by the use of "packets" and by inculcating the necessity for prompt and early disinfection. He also shows that the number of cases per 1000 was considerably less among the British, Scottish, and Irish troops than among the colonial and overseas contingents, although among the latter a most energetic propaganda, including disciplinary measures, was carried on, more especially among the Australians, with regard to prophylaxis. Notwithstanding this, the gross ratio of cases, Australians especially, exceeded by far that which prevailed in the purely British Army. Doubtless these facts were before the Departmental Committee when Major Astor issued his report to the Minister of Health. This being so, surely it is possible for those of the medical profession, who, whatever views they may hold on this particular controversy, are absolutely united in their wish to do their utmost to combat and prevent these diseases, to avoid the infliction of an infinite injury on the community by insisting on the very small differences which now remain between the great majority of those ranged on either side of this controversy.

I am, Sir, yours faithfully,

E. B. TURNER, F.R.C.S.,
Chairman, Medical Committee, National Council for Combating Venereal Diseases.

81, Avenue Chambers, Southampton-row, London, W.C.,
Oct. 22nd, 1919.

THE EUGENICS EDUCATION SOCIETY.—The Permanent International Eugenics Committee was to have met at Brussels on August 5th, 1914, to consider the arrangements for an International Congress of Eugenics in the United States. The meeting did not take place, but the same subject has now been discussed at a meeting of the committee held at the Royal Society, and arrangements may be made for an eugenic congress to be held next year in New York. Seven years have elapsed since the holding of the first International Eugenic Congress in London, 1912, and during this interval the war has brought out the need for more knowledge and for a wider appreciation of the facts already known. The address of the Eugenic Society in England is 1', Lincoln's Inn-fields, London, W.C. 2., General Secretary, Miss Constance Brown.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels relinquish the temporary rank of Colonel: W. P. Gwynn, J. H. R. Bond.

Lieut.-Col. H. Simson relinquishes the acting rank of Colonel.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Major and Bt. Lieut.-Col. A. W. Sumrey; Majors W. MacD. MacDowall, H. G. Sherren, A. S. Williams; Temp. Major G. D. Gray; Capts. G. O. Chambers, A. H. T. Davis, J. H. Ward; Temp. Capt. H. E. Stiven.

To be acting Lieutenant-Colonels: Major T. H. Scott; Capts. P. Carney, A. J. Hickey, J. R. Hill; Temp. Capts. F. D. Johnson, A. J. Blake (acting Majors).

To be acting Major: A. L. Aymer.

The undermentioned relinquish the acting rank of Major: Capts. (Bt. Major) J. D. Bowie, F. S. Tamplin, P. G. M. Elvery; Temp. Capts. C. E. Dukes, J. B. Alexander, W. A. Hotson, J. J. Gibb, C. M. Geddie, C. Averill, F. G. Milne, A. G. Troup, J. S. Williamson, H. G. Joyce, A. Dick, A. Mathieson, W. S. Perrin, H. H. Hepburn, W. H. D. Smith, J. Morrison, R. G. Riches, E. S. Marshall.

To be acting Majors: Capt. F. R. H. Mollan; Temp. Capts. W. B. Swett-Evans, A. W. Comber, W. S. Perrin, F. D. Saner, A. C. Lambert, F. D. Johnson, A. G. Howson, A. A. Wilson, J. W. Simon, A. R. Esler, R. S. Wallace, S. H. Pitcairn, O. de B. Burgh.

Major G. W. Heron is restored to the establishment.

To be Captains: Capt. K. L. O'Sullivan (from Special Reserve); Temp. Capt. D. G. Yates.

To be temporary Captains: J. Maguire (late temporary Captain), B. P. Hynes.

Temp. Lieut. B. D. Merrin to be temporary Captain.

M. J. Woodberg to be temporary Lieutenant.

Officers relinquishing their commissions: Temp. and acting Major H. D. Gillies (retains the rank of Major); Temp. Major T. C. Squance (retains the rank of Major); Temp. Capt. and Brevet Major H. F. Marris (retains the brevet rank of Major); Temp. Capts. (granted the rank of Major) R. G. Riches, A. G. Hamilton, R. Charles, A. Mathieson; Temp. Capts. (retaining the rank of Captain) W. Lock, P. Donald, A. W. McGregor, A. E. Finney, H. I. Pinches, J. B. Tombleson, F. W. McMillan, R. G. Meyer, A. J. Brock, W. Parker, F. Morres, J. McCausland, D. L. Sewell, P. W. M. Curry, P. R. Lowe, H. Archer, S. F. McDonald, W. D. Sammon, J. B. McDougall, F. C. Mason, O. S. Kellett, J. E. Rees, G. P. B. Huddy, E. W. H. Cruickshank, E. C. Tamplin, W. D. Allan, W. Lessey, F. Bryan, R. C. Coatsworth, G. M. Grant, A. Crawford, W. R. Logan, G. M. Jackson, P. A. Sarjeant, J. Finnegan, L. G. Brown, B. D. Merrin, J. T. H. Madill, C. C. C. K. White; Temp. Hon. Capt. F. J. Caldwell; Temp. Lieut. (retaining the rank of Lieutenant) E. W. Sharp, W. G. Cock, D. Ferguson.

Canadian Army Medical Corps.

Temp. Lieut.-Col. (acting Col.) P. Burnett to be temporary Colonel.

Hon. Major H. J. Testar retires in the British Isles.

Temporary Captains (acting Majors) to be temporary Majors: J. R. McRae, A. C. C. Johnston, C. M. Strong.

SPECIAL RESERVE OF OFFICERS.

Major S. G. McAllum relinquishes the acting rank of Lieutenant-Colonel.

Captains relinquishing the acting rank of Major: A. R. F. Clarke, S. W. M. Jones, E. Watson-Williams, A. Wilson.

Capt. T. C. Storey to be acting Major.

Capt. O. C. S. Tandy relinquishes his commission and retains the rank of Captain.

Lieutenants to be Captains: D. A. Dyer, E. S. Gawne, F. L. Whincup, J. H. E. Moore, B. Sergeant, F. Holmes, G. P. N. Richardson, W. G. Burns.

TERRITORIAL FORCE.

The undermentioned relinquish their acting rank on ceasing to be specially employed: Majors (acting Lieut.-Cols.) F. Gracie, J. F. Crombie; Capt. (acting Lieut.-Col.) H. Paterson; Capts. (acting Majors) H. R. Dive, C. B. Johnstone, J. Everidge, K. D. Wilkinson, F. S. Bedale, J. F. Edmiston, E. W. Matthews.

Capt. F. W. K. Tough to be acting Major whilst specially employed.

Capt. H. A. B. Whitelocke is restored to the establishment on ceasing to be employed with the Egyptian Army.

Capt. A. Scott-Turner is restored to the establishment.

2nd Northern General Hospital: Capt. (acting Major) L. R. Braithwaite relinquishes the acting rank of Major on ceasing to be specially employed.

3rd Western General Hospital: Capt. (acting Major) T. M. Thomas relinquishes the acting rank of Major on ceasing to be specially employed.

2nd Southern General Hospital: Lieut.-Col. (Brevet Col.) J. P. Bush is restored to the establishment on vacating appointment as Assistant Director of Medical Services.

ROYAL AIR FORCE.

Medical Branch.—Lieut.-Col. G. N. Biggs (Major, R.A.M.C., T.F.), from unemployed list, to be restored to establishment. Flying Officer R. G. J. McCullagh to be Flight-Lieutenant. Capt. H. Harvey to be acting Major whilst employed as Major. The undermentioned are transferred to unemployed list:—Majors (acting Lieut.-Cols.) J. L. Birley, H. C. T. Langdon; Capts. W. P. Whippell, R. B. Lilly.

Dental Branch.—Flying Officer L. Wigoder to be Flight Lieutenant. Capt. R. Fyson is transferred to unemployed list.

INDIAN MEDICAL SERVICE.

Temporary Lieutenants to be temporary Captains:—G. P. de Sibra, Jugal Kishor Adhya.

The King has approved the retirement of Lieutenant-Colonel Sir W. J. Buchanan, K.C.I.E.

DEATHS IN THE SERVICES.

Surg.-Gen. Charles James, R.N., of St. Just in Penwith, Cornwall, died at a nursing home in London on Oct. 7th, in his 65th year. The deceased officer, who qualified M.R.C.S. and L.R.C.P. Edin., entered the Royal Navy as surgeon in 1877. He served on H.M. *Tenedos* in the Zulu War of 1879 for which he was awarded the medal. In 1882 he was attached to the Hospital at Jamaica during an epidemic of yellow fever, and received the thanks of the Lords of the Admiralty for his zeal and devotion to duty during the outbreak. In 1909 he attained the rank of Surgeon-General. The deceased will be greatly missed at St. Just, and much sympathy is felt there for his widow.

THE HONOURS LIST.

The following awards for distinguished service rendered during the War are announced:—

C.B.E.—Miss J. L. D. Fairfield, M.D.

O.B.E.—Maj. E. C. Clements, R.A.M.C. (T.F.).

Foreign Decorations.

French.

Légion d'Honneur—Commandeur: Lt.-Gen. C. H. Burtchaell, K.C.B., C.M.G., R.H.S.

Croix de Guerre.—Col. C. M. Begg, C.B., C.M.G., New Zealand M.C.; Capt. and Brev. Maj. (acting Lt.-Col.) G. H. Dive, D.S.O., R.A.M.C.; Capt. S. M. Hattersley, M.C., R.A.M.C.; Capt. T. R. Kenworthy, M.C., R.A.M.C. (T.F.); Temp. Capt. A. C. Ling, R.A.M.C.; Maj. G. W. Miller, D.S.O., T.D., R.A.M.C. (T.F.); Temp. Capt. E. F. O'Connor, R.A.M.C.; Capt. H. B. Pope, M.C., R.A.M.C. (T.F.); Capt. F. Wigglesworth, M.C., R.A.M.C. (T.F.); Maj. G. F. Whyte, R.A.M.C. (T.F.).

Ordre du Mérite Agricole.—Officier: Maj. A. E. S. Irvine, D.S.O., R.A.M.C.

Médaille des Epidémies.—D'Or: Temp. Capt. W. A. Anderson, R.A.M.C.; Capt. C. F. M. Saint, C.B.E., R.A.M.C. (T.F.); Capt. R. W. Swayne, O.B.E., R.A.M.C. (T.F.).—*En Vermeil:* Capt. J. Dale, O.B.E., R.A.M.C. (T.F.).—*En Argent:* Col. G. Dansey-Browning, C.B.E., late R.A.M.C.; Capt. and Brev. Maj. (acting Lt.-Col.) G. H. Dive, D.S.O., R.A.M.C.; Capt. R. D. Goldie, R.A.M.C. (S.R.); Temp. Capt. (acting Maj.) T. C. Ritchie, O.B.E., R.A.M.C.

Médaille de l'Assistance Publique en Argent: Temp. Capt. C. Aldis, R.A.M.C.; Temp. Capt. A. Baltie, R.A.M.C.; Col. A. L. F. Bate, C.M.G.; Maj. G. E. Ferguson, R.A.M.C.; Capt. W. Fitzpatrick, R.A.M.C. (T.F.); Capt. T. J. Kelly, M.C., R.A.M.C.; Temp. Capt. H. C. Semon, R.A.M.C.

Hellenic.

Greek Military Cross.—2nd Class: Capt. (Temp. Maj.) T. H. Peyton, D.S.O., R.A.M.C. (T.F.R.); Capt. and Brev. Maj. (acting Lt.-Col.) M. J. Williamson, M.C., R.A.M.C. *3rd Class:* Temp. Capt. W. H. Hooton, R.A.M.C.

Portuguese.

Military Order of Avis.—Grand Officer: Maj.-Gen. J. J. Gerrard, C.B., C.M.G. *Commander:* Maj. J. H. Barbour, R.A.M.C.; Col. A. B. Soltau, C.M.G., O.B.E., R.A.M.C. (T.F.).

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING SEPTEMBER, 1919.

In the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 6·6 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 4·7, 5·9, and 4·9 per 1000. Among the metropolitan boroughs the lowest rates from these notified diseases were recorded in Kensington, Hammersmith, Chelsea, the City of Westminster, St. Marylebone, Hampstead, and the City of London; and the highest in Hackney, Finsbury, Shoreditch, Bethnal Green, Stepney, and Poplar. The prevalence of scarlet fever showed a marked increase—42 per cent.—over that recorded in the preceding month; this disease was proportionally most prevalent in Finsbury, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. The Metropolitan Asylums Hospitals contained 1633 scarlet fever patients at the end of the month, against 1132, 1516, and 1409 at the end of the three preceding months; the weekly admissions averaged 289, against 157, 236, and 184 in the three preceding months. Diphtheria also was considerably more prevalent—36 per cent.—than it had been in the preceding month; the greatest proportional prevalence of this disease was recorded last month in Hackney, Shoreditch, Bethnal Green, Stepney, Poplar, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1021, 1108, and 1001 at the end of the three preceding months, rose to 1168 at the end of September; the weekly admissions averaged 180, against 138, 153, and 125 in the three preceding months. The prevalence of enteric fever was also considerably greater—42 per cent.—in September than in August; the 44 cases notified last month included 6 in Stepney, 4 in Greenwich, 4 in Woolwich, and 3 each in Islington, Hackney, Poplar, Lambeth, and Wandsworth. Erysipelas was proportionally most prevalent in Stoke Newington, Shoreditch, Bethnal Green, Stepney, and Poplar. The 31 cases of puerperal fever notified during the month included 8 in Wandsworth, 4 in Fulham, 3 in Camberwell, and 2 each in Paddington, Islington, Hackney, Finsbury, Southwark, Lambeth, and Battersea. Of the 10 cases of cerebro-spinal meningitis, 3 belonged to Wandsworth and 2 to Hackney; while of the 22 cases of poliomyelitis 4 belonged to Poplar, 3 to Battersea, 2 to St. Marylebone, 2 to Hackney, and 2 to Camberwell.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended Sept. 27th the deaths of 3462 London residents were registered, equal to an annual rate of 11·2 per 1000; in the three preceding months the rates had been 9·7, 9·8, and 9·9 per 1000. The death-rates last month ranged from 5·7 in the City of London, 7·9 in Hampstead, 8·0 in Wandsworth, 8·4 in Chelsea, 8·7 in Lewisham, and

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING SEPTEMBER, 1919.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.								Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,026,901	—	1043	677	—	44	1	31	199	10	22	2027	6·6	—	17	14	51	23	3	386	494	1·6	3462	11·2
West Districts:																								
Paddington	122,507	—	12	21	—	—	—	2	7	—	—	42	4·5	—	—	—	1	—	—	14	15	1·6	114	12·1
Kensington	151,535	—	9	17	—	2	—	—	4	—	1	33	2·8	—	—	—	—	—	—	23	23	2·0	138	11·9
Hammersmith	114,962	—	6	10	—	2	—	1	4	—	1	24	2·7	—	—	—	2	—	—	21	23	2·6	104	11·8
Fulham	145,186	—	16	23	—	1	—	4	3	—	1	48	4·3	—	—	—	2	—	—	16	18	1·6	122	11·0
Chelsea	57,368	—	10	3	—	—	—	—	1	—	1	15	3·4	—	—	1	—	—	—	3	4	0·9	37	8·4
City of Westminster	122,046	—	24	6	—	2	—	—	3	—	—	35	3·7	—	—	—	2	—	—	6	8	0·9	89	9·5
North Districts:																								
St. Marylebone	92,796	—	9	6	—	1	—	—	6	1	2	25	3·5	—	—	1	—	—	—	7	8	1·1	85	11·9
Hampstead	75,649	—	7	5	—	—	—	—	3	—	1	16	2·8	—	1	—	1	—	—	2	4	0·7	46	7·9
St. Pancras	186,600	—	36	20	—	—	—	—	11	—	1	68	4·8	—	1	1	1	—	—	17	20	1·4	167	11·7
Islington	297,102	—	96	47	—	3	1	2	14	1	1	165	7·2	—	1	—	3	1	—	22	27	1·2	234	12·5
Stoke Newington	47,426	—	9	4	—	—	—	—	5	—	—	18	4·9	—	—	—	—	1	—	—	1	0·3	40	11·0
Hackney	196,598	—	62	62	—	3	—	2	7	2	2	140	9·3	—	—	2	4	2	—	16	24	1·6	161	10·7
Central Districts:																								
Holborn	35,303	—	4	7	—	—	—	—	2	—	—	13	4·8	—	—	—	—	—	—	1	1	0·4	36	13·3
Finsbury	68,011	—	30	13	—	1	—	2	3	—	—	49	9·4	—	—	—	1	—	—	3	4	0·8	58	11·1
City of London	16,138	—	1	—	—	—	—	—	—	—	—	1	0·8	—	—	—	—	—	—	—	—	—	7	5·7
East Districts:																								
Shoreditch	89,675	—	35	22	—	—	—	—	9	—	—	66	9·6	—	—	—	2	1	—	18	21	3·1	99	14·4
Bethnal Green	107,362	—	49	36	—	1	—	1	22	—	—	109	13·2	—	1	—	4	1	—	21	27	3·3	114	12·6
Stepney	232,010	—	120	59	—	6	—	—	19	—	—	204	11·5	—	3	3	3	—	1	33	43	2·4	243	12·5
Poplar	143,443	—	50	34	—	3	—	—	13	—	4	104	9·5	—	1	1	2	6	—	18	28	2·5	137	12·5
South Districts:																								
Southwark	167,936	—	68	34	—	—	—	2	11	—	—	115	8·9	—	2	1	4	—	—	35	42	3·3	172	13·4
Bermondsey	107,635	—	44	18	—	—	—	—	6	—	—	68	8·2	—	—	—	4	—	1	16	21	2·5	116	14·0
Lambeth	272,038	—	58	59	—	3	—	2	10	1	—	133	6·4	—	—	2	3	4	—	22	31	1·5	246	11·8
Battersea	150,023	—	35	19	—	1	—	2	3	1	3	62	5·4	—	—	1	5	1	—	9	16	1·4	117	10·2
Wandsworth	300,787	—	81	34	—	3	—	8	11	3	—	140	6·1	—	—	—	4	2	1	11	18	0·8	184	8·0
Camberwell	239,461	—	51	31	—	1	—	3	7	—	2	95	5·2	—	5	—	—	—	—	27	32	1·7	191	10·6
Deptford	103,527	—	37	12	—	1	—	—	5	1	1	57	7·2	—	2	—	—	—	—	11	13	1·6	83	10·3
Greenwich	90,440	—	31	14	—	4	—	—	2	—	—	51	7·3	—	—	—	—	4	—	4	8	1·2	80	11·5
Lewisham	161,405	—	39	29	—	—	—	—	7	—	1	76	6·1	—	—	1	2	—	—	5	8	0·6	108	8·7
Woolwich	131,942	—	15	32	—	4	—	—	1	—	—	52	5·1	—	—	—	1	—	—	5	6	0·6	108	10·7
Port of London	—	—	1	—	—	2	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

9·5 in the City of Westminster, to 12·6 in Bethnal Green, 13·3 in Holborn, 13·4 in Southwark, 14·0 in Bermondsey, and 14·4 in Shoreditch. The 3462 deaths from all causes included 494 which were referred to the principal infectious diseases; of these, 17 resulted from measles, 14 from scarlet fever, 51 from diphtheria, 23 from whooping-cough, 3 from enteric fever, and 386 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London. Among the metropolitan boroughs they caused the lowest death-rates in Hampstead, Stoke Newington, Holborn, Lewisham, and Woolwich; and the highest in Hammersmith, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. The 17 deaths from measles were 21 fewer than the average number in the corresponding period of the five preceding years; of these 5 belonged to Camberwell, 3 to Stepney, 2 to Southwark, and 2 to Deptford. The 14 fatal cases of scarlet fever were 2 in excess of the average, and included 3 in Stepney, 2 in Hackney, and 2 in Lambeth. The 51 deaths from diphtheria exceeded the average by 12; the greatest proportional mortality from this disease occurred in Hackney, Shoreditch, Bethnal Green, Southwark, Bermondsey, and Battersea. The 23 fatal cases of whooping-cough were 18 below the average, and included 6 in Poplar, 4 in Lambeth, 4 in Lewisham, 2 in Hackney, and 2 in Wandsworth. Three deaths from enteric fever were registered during the month, against an average of 8. The 386 fatal cases of infantile diarrhœa were 175 less than the average number; the greatest proportional mortality from this disease last month was recorded in Kensington, Hammersmith, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London in September from these principal infectious diseases was 29·4 per cent. below the average.

(Week ended Oct. 18th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had increased from 10·4 to 12·2 in the five preceding weeks, further rose to 12·5 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 14·7, or 1·7 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 6·3 in Newport (Mon.), 6·4 in Blackpool, and 6·6 in Walthamstow and in Gloucester, to 17·1 in Grimsby, 17·2 in Hastings, and 17·6 in Wigan. The principal epidemic diseases caused 270 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 157 from infantile diarrhœa, 51 from diphtheria, 27 from measles, 20 from scarlet fever, 9 from whooping-cough, and 6 from enteric fever. Measles caused a death-rate of 2·0 in South Shields and 2·7 in Tynemouth, and scarlet fever of 1·2 in Stoke-on-Trent. The deaths from diarrhœa were 68 below the number in the previous week, and included 69 in London, 9 in Liverpool, and 5 each in Birmingham, Sunderland, and Newcastle-upon-Tyne. There were 2120 cases of scarlet fever and 1320 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1968 and 1290 respectively at the end of the previous week. The causes of 27 deaths in the 96 towns were uncertified, of which 4 were registered in Leicester, 3 in London, and 2 in Birmingham.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 11·9, 10·8, and 10·2 in the three preceding weeks, rose to 12·3 per 1000. The 245 deaths in Glasgow corresponded to an annual rate of 11·4 per 1000, and included 7 from infantile diarrhœa, 2 from diphtheria, and 1 each from enteric fever, measles, and scarlet fever. The 97 deaths in Edinburgh were equal to a rate of 15·0 per 1000, and included 3 from scarlet fever, 2 from diphtheria, and 1 each from measles, whooping-cough, and infantile diarrhœa.

Irish Towns.—The 121 deaths in Dublin corresponded to an annual rate of 15·6, or 1·2 per 1000 above that recorded in the previous week, and included 8 from infantile diarrhœa. The 104 deaths in Belfast were equal to a rate of 13·5 per 1000, and included 9 from scarlet fever, 7 from infantile diarrhœa, and 1 from enteric fever.

Medical News.

PARLIAMENT reassembled on Wednesday, Oct. 22nd, for the Autumn Session.

UNIVERSITY OF CAMBRIDGE.—The following candidates have satisfied the examiners in both parts of the Examination in Sanitary Science:—

Mark Avent, Arthur Cecil Barker Biggs, Philip Cyril Powter Cloake, Max Everard Delafield, James Angus Doull (Major, R.A.M.C.), Arthur Alvin Martin, Robert William Meller, Alan Filmer Rook (Captain, R.A.F.M.C.), and Edward Newbury Thornton (Lieut.-Colonel, S.A.M.C.).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on Oct. 15th the following gentlemen, having passed the requisite examinations between June 30th and July 5th, were admitted Fellows:—

David Aiken, George Herbert Alabaster, Robert Marshall Allan, John Anderson, Ralph Campbell Lindsay Batchelor, William George Bendle, Herbert Alfred Botkin, Theodore Chalmers, Louis David Cohen, James Reid Dick, Louis Daniel Eglerth, William Dawson Galloway, Howard Vivian Alexander Gatchell, John Guthrie, Howard Havelock Hepburn, Pow-Kan Liang, Keith Shelley Parker, William James Porteous, John Joseph Power, Robert Vachell De Acton Redwood, Andrew Stewart, John Arthur West, Ernest Gotshall Williamson, and Douglas Wood.

Mr. E. Hurry Fenwick, consulting surgeon to the London Hospital, has been elected President of the Société Internationale d'Urologie, in succession to Professor Guyon, of Paris.

THE festival dinner in aid of the Great Northern Central Hospital, at which the Prince of Wales is to preside, will be held at the Connaught Rooms, Great Queen-street, on Dec. 12th.

CONFÉRENCES DE RADIOLOGIE, DE RADIUMLOGIE, ET D'ÉLECTROLOGIE, PARIS.—The Director of the Assistance Publique at Paris announces that from Monday, Nov. 3rd, to Dec. 2nd, 1919, a series of lectures and demonstrations will be given at the Hôtel-Dieu, Place du Parvis Notre Dame (Amphithéâtre Trousseau), Paris, on Radium, Radiology, and Electrotherapeutics. They are organised by the Society of Principal Medical Officers of the Laboratories of Radiology and Electrotherapy of the Paris Hospitals each year in May and November, but were suspended during the war. The practical demonstrations are given at the various hospitals in parties of ten at the most. Application for enrolment, which is gratuitous, should be made to Dr. Delherm, Hôpital de la Pitié, Boulevard de l'Hôpital, 83, Paris (XIII.). The names of the lecturers are, alphabetically—Drs. Beaujard, Bourguignon, Charlier, Darbois, Delherm, Ehrmann, Gastou, Guilleminot, Grunspan, Haret, Jaugeas, Lebon, Maingot.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—On Founder's Day, Nov. 3rd, the feature of the celebration will be a short thanksgiving service in chapel at 3 P.M., with an address by the Rev. J. V. Macmillan, and tea in the board room and hall, after which the wards of the hospital will be open for inspection. The hospital is the oldest and largest hospital in the country for the treatment of diseases of the nervous system, and has many other organisations under its board of management. A country branch at East Finchley of 40 beds is for men, women, and children in a convalescent stage. Bray Court, Maidenhead, where extension is in contemplation, provides 50 beds for discharged sailors and soldiers suffering from shell shock and neurasthenia. Lonsdale House, Clapham Park, contains 32 beds for discharged paralysed sailors and soldiers. These are in connexion with the Ministry of Pensions. The annexe in Queen-square, of 32 beds, is for discharged sailors and soldiers suffering from paralysis and epilepsy. There is a pension fund for the incurable, from £10 to £22 10*s.* annually, a school of massage and one of electrical treatment, and a hostel in Queen-square for workers in above schools. A sum of £30,000 is required annually from voluntary sources for this necessary and extensive work.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—The first meeting of the session was held on Oct. 17th at the General Infirmary, Leeds.—The opening address was given by Sir T. Clifford Allbutt, who sketched the early history of the society, which he was instrumental in founding, and reviewed the present position of the medical profession, particularly as it affects the general practitioner, making a strong appeal for the retention of that intimate relation with his patients which is such an important factor in the work of the family doctor.—A vote of thanks to Sir Clifford Allbutt, proposed by Sir Berkeley Moynihan, seconded by Dr. J. E. Eddison, was carried with acclamation.—Among the cases and specimens shown at the meeting were the following:—Dr. T. Wardrop Griffith: A case of Cerebral Embolism in a young man, with rheumatic aortic and mitral valve disease. There was left hemiplegia associated with left hemianæsthesia. The hemianæsthesia was not of that transient character which often accompanies hemiplegia, and it was therefore concluded that it could not be attributed merely to an arrest of cortical circulation. The circulation in the middle cerebral was arrested either by a block in that vessel or the internal carotid, at a point on the proximal side of the antero-lateral group of perforating arteries, so that both the lenticulo-striate and the lenticulo-optic arteries had their circulation arrested. It was noteworthy that there was no hemianopic defect; the middle cerebral or internal carotid block would leave intact the optic radiolations which lie behind the sensory tract of the internal capsule, and are within the sphere of posterior cerebral supply.—Dr. L. A. Rowden: Radiographs taken on Eastman's Dupli-tised Films. A kidney case which could not be radiographed in the ordinary way showed two calculi quite plainly. The exposures of all were very rapid.—Professor J. B. Hellier: A woman suffering from Osteomalacia. Her age was 36, and the disease had developed during the last 5½ years. There were marked rostration of the pubes, and several spontaneous fractures of the bones. Her fourth child had been delivered by craniotomy. The case had been treated by oöphorectomy, performed on Sept. 13th. There was already considerable improvement. The bones showed unusual transparency to X rays.

Sir Henry Alexander Miers, D.Sc., F.R.S., Vice-Chancellor of the University of Manchester, has been appointed by an Order of Council, dated Oct. 16th, 1919, to be a member of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research.

IN connexion with the International Economic Conference convened by the Fight the Famine Council, a public meeting will be held at the Central Hall, Westminster, on Wednesday, Nov. 5th, at 8 P.M., to consider the economic condition of Europe, when Dr. L. Haden Guest, among others, will speak. Dr. Guest has recently returned from Vienna.

PLAGUE ON A TROOPSHIP.—The 2nd Leicestershire Regiment has arrived at Bombay and entrained for Secunderabad, where they are to be stationed. The voyage of the *Moora* was eventful; plague broke out on board, and the vessel was put in quarantine at Malta. The troops were disembarked and placed in segregation camps for about a month. The voyage out from Tilbury took a little over two months.

MEDICAL MAGISTRATES.—Dr. William Bragg Addison, of the Isles of Scilly, and Dr. William Fookes Thompson, of Launceston, have been placed on the commission of the peace for the County of Cornwall. Dr. Leonard Molloy has been placed on the commission of the peace for the Borough of Blackpool.

THE WILLIAM TAIT SEWELL MEMORIAL FUND.—The fund instituted to perpetuate the memory of the late Major W. T. Sewell, M.D., D.P.H., Royal Inniskilling Fusiliers, formerly demonstrator of bacteriology and lecturer in pathology in the University of Durham College of Medicine, who fell on active service in France on July 1st, 1916, closes at the end of this month. Some £125 has been contributed by friends and colleagues to the number of 30 or more. Any others wishing to subscribe should forward their contributions without delay to the honorary treasurer of the fund, Mr. Thomas Dunn, University of Durham College of Medicine, Newcastle-on-Tyne. A meeting of the subscribers will be called to determine what form the memorial should take.

UNIVERSITY OF LONDON: WILLIAM JULIUS MICKLE FELLOWSHIP.—The last date for the receipt of applications for this prize has been extended to Nov. 15th. The Fellowship, which is of the value of £200, is awarded annually by the Senate to the man or woman who, being resident in London and a graduate of the University, has in the opinion of the Senate done most to advance medical art or science within the preceding five years, and has therein shown conspicuous merit. Further details can be obtained on application to the Academic Registrar, University of London, South Kensington, S.W. 7.

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH: ANNUAL DINNER.—The annual dinner of the Society of Medical Officers of Health was held at the Café Royal on Oct. 17th, Professor Henry Kenwood, C.M.G., the President, occupying the chair. In proposing the toast of "His Majesty's Forces" Professor A. Bostock Hill referred to the remarkable advances made in surgery and medicine called into being by the war. Never before in the history of the world's battles had there been such efficient and effective medical administration. Lieut.-General Sir John Goodwin, in replying, said that there was no doubt that the war was won by preventive medicine, and that the country owed much to the finely equipped and organised medical service. The lesson of it all was the value of prevention. He had definitely asserted that in the second year of the war the end would have been in sight within six weeks if one side or the other had decided to stop its preventive measures of disease. The President, in proposing "The Ministry of Health," in an interesting speech remarked upon the wonderful development of medical administration. He considered that the public health service of this country was the finest in the world. There was still much to be done, particularly in getting public bodies to realise the value of efficient public health measures. Great problems were in front of them and the coöperation of the medical man with the layman was essential. In responding, in the absence through illness of Dr. Addison, the Minister of Health, Sir Robert Morant took up much the same theme. Future progress, he said, meant patient, painstaking work—there was no short cut, and sound organisation meant the work of medical service going on hand-in-hand with the intelligent lay class. Sir George Newman proposed the toast of "The Society of Medical Officers of Health," which was ably responded to by the President, who gave a short history of the society and paid a great tribute to its founder, Sir John Simon. The toast of "The Guests" was proposed by Dr. G. F. Buchan, and the Dean of St. Paul's replied in a speech including a tribute to the noble work of the medical profession.

CAMBRIDGE GRADUATES' MEDICAL CLUB.—There will be a general meeting of this club at 1, Wimpole-street, W. (the house of the Royal Society of Medicine), on Monday, Nov. 3rd, at 5 P.M. It is hoped that there will be a large attendance, as this is the first meeting to be held since 1914, and there are important questions to be discussed.

THE LATE DR. JOSEPH WIGLESWORTH'S LIBRARY.—The late Dr. J. Wiglesworth, formerly of Liverpool, who on his retirement resided at Wiscombe, Somerset, has bequeathed his ornithological library to Bristol University. The library, which is probably one of the best special collections in the kingdom, consists of over 1000 volumes, and will be placed in a separate room in the University buildings.

ST. BARTHOLOMEW'S HOSPITAL.—The Lord Mayor of London presided on Oct. 21st at a Mansion House luncheon to open the People's Peace Year Commemoration Fund in aid of St. Bartholomew's Hospital. He stated that since 1914 the annual cost of maintenance had risen by £30,000, and that the management was now faced with a deficit of £20,000, and the prospect of curtailment of the work of the hospital. Telegrams were read from the King and the Prince of Wales. Dr. Addison, speaking as a member of the Government and a former student of the hospital, said that the grant in aid of the organisation and support of a medical and surgical unit would be first claimed by this hospital. At the close of the proceedings an inaugural fund of £18,000 was announced.

UNIVERSITY OF MANCHESTER.—The University of Manchester, like other seats of instruction, appears to have a record entry of students. Already 2500 students of all years have entered, as compared with 1537 in 1913, last year 1036, and 931 in 1917, so that there is an increase of 1000 on the highest pre-war year. The faculties which show the greatest increase are medicine and technology, with science. The medical students this year are 700, as against 270 in the year before the war. The women medical students now number 100, more than three times the figure of any pre-war year. The departments of dentistry and pharmacy are almost equally crowded. The authorities of the Manchester Royal Infirmary have presented the infirmary medical library to the medical library of the University, and Mrs. Arnold W. W. Lea has presented a collection of books from the library of her late husband, Dr. A. W. W. Lea, formerly lecturer in obstetrics and gynæcology in the University.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee on Oct. 14th 27 cases were considered and £313 2*s.* voted to 23 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 53, of L.R.C.P. & S. Edin. who was a fleet surgeon, R.N., and died in 1905. Applicant finds it necessary to apply for help owing to the death of her mother, who lived with her, and whose pension died with her. Receives £36 from dividends, and £4 per week from letting rooms. Has one daughter who helps at home. Pays £2 per week rent. Voted £10.—Daughter, aged 69, of M.R.C.S. Eng. who practised in London and died in 1877. Has lost her income owing to the mismanagement of her own and late brother's affairs and lawyer's expenses. Owns two small shops, which are continually under repair. Receives a little help from friends and relations, and has £15 from another charity. Voted £18 in 12 instalments.—Widow, aged 34, of F.R.C.S. Eng. who practised at Southport and died in May, 1919. Income about £125, part of which is income on funds which belong to the children, and will be payable to them on coming of age. Has three children, ages 12-4 years. House lent by a doctor in respect of services. Voted £10.—Daughter, aged 62, of M.R.C.S. Eng. who practised at Lostwithiel and died in 1887. Applicant earns £1 per week by working on the land, and a little extra by needlework. Receives £20 at Christmas. Pays 6*s.* a week rent. Her property has been sold to pay debts. Voted £18 in 12 instalments.—Widow, aged 70, of M.B. Lond. who practised at Bargoed and died in 1915. Applicant has no income. Lives in own house, which has £75 mortgage on it. Rates £15 a year. Suffers from ill-health. Has one daughter, aged 44, who helps in the home. Voted £18 in 12 instalments.—Widow, aged 75, of M.R.C.S. Eng. who practised in London and died in 1882. Only income £50 pension from another charity. Has four children, and they pay the rent, 9*s.* a week. Applicant is too old to work and suffers from ill-health. Cannot manage owing to the high cost of living. Voted £18 in 12 instalments.—Daughter, aged 63, of M.R.C.S. who practised at Sudbury, Suffolk, and died in 1880. Has no income. Applicant is obliged to apply for help owing to the death of her brother in-law, to whom she acted as housekeeper. Now living with her niece. Voted £18 in 12 instalments.—Daughter, aged 83, of M.R.C.S. who practised at Derby and died in 1855. Applicant cannot make ends meet owing to the high cost of living and through the death of her brothers, who used to help her. She pays £104 for board and lodging. Voted £18 in 12 instalments.—Widow, aged 51, of L.F.P. & S. Glasg. who practised in Glasgow and died in 1875. Has no income except a little from needlework when obtainable. Pays 4*s.* a week rent for one room. Has one son, aged 33, who is a journalist since being demobilised and is married and now unable to help applicant. Was helped by the Fund 20 years ago. Voted £12 in 12 instalments.

Subscriptions may be sent to the acting honorary treasurer, Dr. Samuel West, at 11, Chandos-street, Cavendish-square, London, W. 1.

DEATH OF DR. F. M. MACKENZIE.—The death occurred on Oct. 11th of Dr. F. M. Mackenzie, of Inverness, at the age of nearly 80 years. Up to within a few days of his death Dr. Mackenzie was leading an active life, being still in practice. He was known as a keen politician, being president of the Inverness-shire Liberal Association.

PRESENTATIONS TO MEDICAL MEN.—At the last meeting of the Taunton Town Council the mayor, on behalf of the council, presented Dr. Henry James Alford with a silver cigarette-box and a cheque, as a mark of appreciation on his resignation of the post of medical officer of health after 46 years' service.—Mr. Daniel Herbert Forty, of Wotton-under-Edge, Gloucestershire, has been presented with a silver inkstand, suitably inscribed, together with a cheque for £100, as a mark of esteem on his retirement after over 40 years' practice in the town and district.

THE King, on the recommendation of the Home Secretary, has been pleased to appoint Mr. Digby Cotes-Preedy, M.A., LL.M. Cantab., Barrister-at-Law, to be the first Recorder of Smethwick. During the war Mr. Cotes-Preedy assisted to take evidence for the Royal Commission on Belgian Atrocities, and was secretary to the committee appointed under the chairmanship of Mr. Justice Bailhache to inquire into the charges made in connexion with the Royal Flying Corps. Later, he was secretary to the Select Committee of the House of Commons which inquired into the working of the Military Service (Review of Exceptions) Act, and the allegations made concerning the examinations by the Medical Boards. Prior to his call to the Bar in 1904, Mr. Cotes-Preedy qualified as a medical man, and in 1903 was house physician to St. George's Hospital under Sir Isambard Owen.

MIDDLESEX HOSPITAL MEDICAL SCHOOL: ANNUAL DINNER.—The annual dinner of the past and present students of the Middlesex Hospital Medical School was held on Oct. 15th at the Holborn Restaurant, Kingsway, Colonel the Earl of Athlone, chairman of the weekly board of the hospital, presiding. The dinner, being the first for six years, proved to be a very successful reunion, and was attended by numerous members and guests, though not a few Middlesex men who had promised to attend on the date originally fixed were unable to be present. After the usual loyal toasts the success of the Middlesex Hospital and its medical school was proposed by Sir John Bland-Sutton, the senior surgeon. He referred with admiration to the work of the chairman and weekly board on behalf of the hospital. The chairman responded on behalf of the hospital. He referred to the necessity which had arisen of closing the hospital during the summer months in order to carry out certain important repairs and alterations. He also mentioned the arrangements which it was hoped to make to improve the accommodation for the nurses and to modernise and extend the out-patient department. Mr. A. E. Webb-Johnson, the Dean, alluded to the large entry at the school and to the work done during the war by past and present students of the hospital, making especial reference to the excellent work of the members of the O.T.C., many of whom had received decorations, while not a few had been killed. Surgeon Rear-Admiral Sir Robert Hill, a distinguished former student, who had distributed the prizes at the school in the afternoon, replied on behalf of the past students and referred to the *esprit de corps* of the school, and to the value of games to the students and to the school. Mr. H. W. Breeze, captain of the cricket eleven which had won the Inter-Hospital Challege Cup for the school in the past session, responded on behalf of the present students. The toast of "The Visitors" was proposed by Dr. W. Essex Wynter, the senior physician, and replied to by Lieutenant-General Sir Arthur T. Sloggett, who spoke in terms of strong appreciation of the work done by members of the Middlesex Hospital in connexion with the R.A.M.C. during the war. The toast of the "Chairman" was proposed by Dr. William Pasteur and responded to by the Chairman, who alluded to various projects for increasing the usefulness of the hospital and helping its funds, among them the festival dinner, at which H.R.H. the Prince of Wales has consented to preside.

BOOKS, ETC., RECEIVED.

LEWIS, H. K., AND CO., LIMITED, London.
Elementary Organic Chemistry. By F. P. Sargeant, Fellow of the Chemical Society. 2nd ed. Pp. 100. 4*s*.

LIVINGSTONE, E. AND S., Edinburgh.
Dementia Præcox and Paraphrenia. By Prof. E. Kraepelin, of Munich. Translated by R. Mary Barclay, M.B., and edited by G. M. Robertson, M.D. Pp. 331. 15*s*.

LONGMANS, GREEN, AND CO., London, New York, and India.
The Essentials of Chemical Physiology for the Use of Students. By W. D. Halliburton, M.D. 10th ed. Pp. 324. 7*s*. 6*d*.
The Nature of Enzyme Action. By W. M. Bayliss, D.Sc. Pp. 190. 7*s*. 6*d*.
Stereochemistry. By A. W. Stewart, D.Sc. 2nd ed. Pp. 277. 12*s*. 6*d*.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANDREW, E. G., M.D. Brux., L.R.C.P., M.R.C.S., has been appointed Medical Officer of Health for the St. Austell (Cornwall) Rural District, the St. Austell Workhouse and Scattered Homes.

BRODRICK, C. C., L.R.C.P. & S., L.M. Edin., Medical Officer of Health for the Tavistock (Devon) Rural District.

GALBRAITH, C. J., M.B., B.S. Lond., M.R.C.S., L.R.C.P., D.P.H., Tuberculosis Officer to the Barnstaple Area of Devon.

KEITH, W. B., M.C., M.D., Senior Assistant Medical Officer at the Surrey County Asylum, Brookwood.

MACLEOD, G., M.B., District Medical Officer by the Long Ashton (Somerset) Board of Guardians.

SUTHERLAND, R., M.B., Ch.B. Vict., Medical Officer of Health for Chard (Somerset).

THOMAS, F. L., M.B., B.S. Lond., L.R.C.P., M.R.C.S., Medical Officer for the No. 2 District by the Barnstaple (Devon) Board of Guardians.

VINEN, G., F.R.C.S. Eng., Ophthalmic Surgeon to the Hospital for Epilepsy and Paralysis, Maida Vale, W.

Certifying Surgeons under the Factory and Workshop Acts: SQUARE, A. P., L.M.S.S.A. (Hanley); FARTHING, T., M.B., C.M. Edin. (Dartford); STANFELD, R. (Hailsham); FELTHAM, H. G., M.B., Ch.B. Edin. (Ulceby); OGILVY, C. S., L.R.C.P. & S. Edin., L.F.P.S. Glasg. (Luddenden).

Vacancies.

For further information refer to the advertisement column.

Battersea General Hospital, Battersea Park, S.W.—Res. M.O. £200.
Beckenham Education Committee.—School Dent. £400.
Bedford County Hospital.—Res. M.O. £150
Birkenhead Borough Hospital.—Hon. Gynæcologist.
Birkenhead and Wirral Children's Hospital, Woodchurch-road.—H.S. £150.
Brentwood Mental Hospital, Brentwood.—Fourth Asst. M.O. £510.
Burnley, Victoria Hospital.—H.S. £250.
Canning Town Women's Settlement Hospital, Plaistow, E.—Female Hon. Asst. S.
Carlisle, Cumberland and Westmorland Mental Hospital, Garlands.—Jun. Asst. M.O. £300.
Central London Ophthalmic Hospital, Judd-street, W.C.—Hon. P. Asst. S.
Charing Cross Hospital, Agar-street, W.C.—Dent. S.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—P. Also Half-time M.O. £200.
Dorchester. Dorset County Council Education Committee.—School Dentists. £400.
Dorset Mental Hospital, Herrison, near Dorchester.—Sec. Asst. M.O. £340.
Dumfries, Crichton Royal.—Asst. P. £350.
Ealing Borough.—Asst. M.O.H. £500.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.P. £125. Res. M.O. £200. Radiologist. £100. Also Two Asst. P.'s, Two Asst. S.'s, Oph. S., and Throat and Ear S.
East Riding Education Authority.—School Dent. £400.
Exeter City.—Asst. M.O.H. and Asst. Sch. M.O. £400.
Exeter, Royal Devon and Exeter Hospital.—M.O. for Treatment of Venereal Diseases. £300.
Glasgow, Lightburn Joint Hospital, Shettleston.—Res. Phys.-Supt. £300.
Glasgow Mental Hospital, Gartloch, Gartcosh.—Asst. M.O. £300.
Gibraltar.—Asst. Colonial S. £450.
Hospital for Sick Children, Great Ormond-street W.C.—Cas. M.O. £200. Also Two Anæs. £15 15*s*.
Hull Royal Infirmary.—Venereal Disease and Cas. O. £250. Also Asst. H.S. £150.
Huntingdon County Hospital.—H.S. £150.
Leeds City.—Asst. M.O.H. £600.
Leeds General Infirmary.—Res. M.O. £150.
Leyton Urban District Council Education Committee.—Asst. M.O. £350.
London Society for Promoting Christianity amongst the Jews, 16, Lincoln's Inn-fields, W.C.—Missionary for Palestine. £350.
London Temperance Hospital, Hampstead road, N.W.—Clin. Asst.
Manchester Children's Hospital, Pendlebury.—Anæsth. £1 1*s*. per visit.
Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Hon. Asst. P.
Manchester and Salford Hospital for Skin Diseases.—H.S. £100.
Metropolitan Hospital, Kingsland-road, E.—Asst. S. Also Pathologist and Registrar. £120.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Hon. Asst Oph. S.
Monmouthshire Education Committee.—Asst. M.O.'s. £500. Also School Dentist. £400.
Mount Vernon Hospital for Consumption and Diseases of the Chest, Northwood, Middlesex.—Asst. P.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Hon. Dent. S. Also H.P.
Newport, Mon., Royal Gwent Hospital.—Three Res. M.O.'s £225, £200, and £160 respectively.
Northampton General Hospital.—H.P. £150.
North Riding of Yorkshire County Council Education Committee.—Asst. Sch. M.O. £450.
Nottingham General Dispensary.—Res. S. £300.
Poplar Hospital for Accidents, E.—Jun. Res. S. £120.
Portsmouth Corporation Mental Hospital.—Asst. M.O. £300.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Ophth. S.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. P., Ophth. S., and Asst. S.

Rochdale Infirmary and Dispensary.—Junior H.S. £125.
Royal Chest Hospital, City-road, E.C.—Two Asst. M.O.'s for Tuberc. Disp. £350. Also Clin. Assts.
Royal London Ophthalmic Hospital, City-road, E.C.—M.O. to X Ray Dept. £120.
Royal Waterloo Hospital for Children and Women, S.E.—Hon. Ophth. S.
St. Bartholomew's Hospital.—Asst. Director of Surgical Unit. £750.
St. George's Hospital, S.W.—Path. and Curator. £300.
Southampton County Borough.—Asst. M.O.H. £500.
Spenborough Urban District.—M.O. and Sch. M.O. £600.
Stamford, Rutland and General Infirmary.—H.S. £200.
Sunderland Education Committee.—Asst. Sch. M.O. £500.
Torquay, Torbay Hospital.—H.S. £200.
Wakefield, West Riding County Council.—Dist. Tuberc. O.'s. £600.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.

THE Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the Bury and Rochdale County Courts, in Circuit No. 5. Applications should be addressed to the Private Secretary, Home Office, not later than Nov. 8th, 1919.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Ashford, Ballyleeson, Cleator, and Hipperholme.

Births, Marriages, and Deaths.

BIRTHS.

ADAMSON.—On Oct. 17th, in Leeds, Rhoda Hicks Butler, M.D., B.S., the wife of Wallace Wright Adamson, M.B., Ch.B., D.P.H., of a son.

BLAKE.—On Oct. 16th, at Wade Cottage, Havant, Hants, the wife of Philip Blake, L.D.S. Eng., of a daughter.

BUCKLEY.—On Oct. 14th, at Meerut, India, the wife of Captain Leonard Buckley, R.A.M.C., of a son.

CALDWELL-SMITH.—On Oct. 8th, at 27, Cliveden-place, Eaton-square, S.W., the wife of E. L. Caldwell-Smith, M.B. Cantab., of a daughter.

CAMPBELL.—On Oct. 13th, at The Copse, Larbert, Stirlingshire, the wife of R. B. Campbell, M.D., F.R.C.P.E., of a daughter.

DERHAM-REID.—On Oct. 15th, at "Auchinellan," St. Helen's-road, Bolton-le-Moors, the wife of Captain James Derham-Reid, M.C., R.A.M.C. (T.F.), of a son.

FALLE.—On Oct. 16th, at 18, York House, W. 1, to H. de C. Falle, O.B.E., and Frances Mabel Falle (Dr. Frances Huxley, 4, Harley-street, W. 1)—a daughter.

FAIRHALL.—On Oct. 1st, at Algernon-road, Lewisham the wife of Dr. Hamlyn Fairhall, of a son.

FOXELL.—On Oct. 13th, at Wheeleys-road, Edgbaston, Birmingham, to Constance, the wife of Humphrey Foxell, M.B., B.S. Lond.—a daughter.

LEAKEY.—On Oct. 14th, at Heathside, Golders Green, the wife of Dr. A. B. Leakey, of a son (Edward Bazett).

MAWSON.—On Oct. 11th, at Carlton-crescent, Southampton, the wife of Owen B. Mawson, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

CLARKE—MARTIN.—On Oct. 13th, at St. Paul's Church, Clifton, Cecil Clarke, M.D., M.R.C.P., to Nora Kathleen, elder daughter of Mr. and Mrs. F. B. Martin, Clifton, Bristol.

MARTIN—SCAIFE.—On Sept. 30th, at St. Patrick's Church, Dalkey, Major Samuel Edgar Martin, M.B., of Lincoln's Inn, Barrister-at-Law, to Edith Gertrude, youngest daughter of J. Harper Scaife, LL.B., of the Middle Temple, Barrister-at-Law, and Mrs. Scaife, Clifton, Dalkey, Co. Dublin.

DEATHS.

JACKSON.—On Oct. 16th, of heart failure, while on leave at Melbourne, Surgeon-Colonel Thomas Jackson, I.M.S.

KERR.—On Oct. 14th, suddenly, at Camberwell New-road, London, D. Oliver Kerr, M.B., C.M., D.P.H., in his 60th year.

MCLELLAN.—On Oct. 16th, at a nursing home in Liverpool, Dr. S. W. McLellan, M.C.

RENTON.—On Oct. 20th, at 80, Thirlestane-road, Edinburgh, James Crawford Renton, M.D., late of 1, Woodside terrace, Glasgow.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Friday, Oct. 31st.

OCCASIONAL LECTURE: at 5.30 P.M.
Lieut.-Col. Hamilton Fairley, A.A.M.C.: Egyptian Bilharziasis: its Recent Pathology, Symptomatology, and Treatment.

MEETINGS OF SECTIONS.

Monday, Oct. 27th.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry, J. Howard Mummery): at 8 P.M.
Presidential Address:
Mr. J. F. Colyer: The Debt of the Dental Profession to John Hunter.
Casual Communications:
Mr. G. C. Chubb: Ankylosis of Mandible and its Operative Treatment.
Mr. W. Kelsey Fry: A Case to Demonstrate the Movements of the Soft Palate.

Tuesday, Oct. 28th.

MEDICINE (Hon. Secretaries—W. Cecil Bosanquet, J. H. Thursfield): at 5.30 P.M.
Paper:
Dr. Gordon Ward: Anæmias of the Hæmolytic Jaundice Group.

Thursday, Oct. 30th.

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbell McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.
Paper:
Dr. F. Parkes Weber: The Position of Health Resorts in Regard to the State.
Members will dine at Pagani's Restaurant, at 7 P.M. Price per head 6s. 6d. Those desiring to attend should send their names to Dr. Charles F. Sonntag, 80A, Belsize Park-gardens, N.W. 3.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.
MONDAY, Oct. 27th.—8.30 P.M., Discussion on the Reclassification and Treatment of Pensioners, to be introduced by Col. A. E. A. Webb, C.B., C.M.G., A.M.S., to be followed by Lieut.-Col. Sir Alfred Pearce Gould, K.C.V.O., R.A.M.C.(T.), Lieut.-Col. E. L. Gowland, R.A.M.C., Capt. R. McNair Wilson, R.A.M.C., and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE, in the Clinical Theatre of the Hospital.
A Special Course of Instruction in the Surgical Dyspepsias will be given by Mr. A. J. Walton:—
MONDAY, Oct. 27th.—4.30 P.M., Lecture XXV.:—The Differential Diagnosis of Surgical Dyspepsias.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Room of the Institute, 37, Russell-square, W.C.
Course of Instruction for Candidates as Tuberculosis Officers, General Practitioners and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.
THURSDAY, Oct. 30th.—5 P.M., Lecture IV.:—Miss Jane Walker, M.D.: The Training of the Tuberculous Sufferer.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY, Oct. 29th.—4.30 P.M., Lecture:—Dr. H. B. Shaw: Some Facts Connected with Pulmonary Tuberculosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.
MONDAY, Oct. 27th.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Dr. Tooth: Tabes Dorsalis.
TUESDAY, Oct. 28th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. Risien Russell.
WEDNESDAY, Oct. 29th.—2 P.M., Lecture:—Mr. Sargent: Surgery of the Brain. 3.30 P.M., Lecture:—Dr. Hinds Howell: Sensory Disturbances of Nervous System.
THURSDAY, Oct. 30th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Risien Russell: Subacute Combine Degeneration.
FRIDAY, Oct. 31st.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Aldren Turner.
Fee for Post-Graduate Course £5 5s. C. M. Hinds Howell, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.
MONDAY, Oct. 27th.—11 A.M., Out Patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.
TUESDAY.—2 P.M., Out-Patients: Dr. R. Wells. 2.30 P.M., In-patients: Dr. Gibbes.
WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Gibbes: Mitral Stenosis.
THURSDAY.—10 A.M., In patients: Dr. Hamill. 2 P.M., Out-patients: Dr. Price.
FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In patients: Dr. Wells.
SATURDAY.—10 A.M., Out-patients: Dr. Hamill.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
THURSDAY, Oct. 30th.—5 P.M., Chesterfield Lecture:—Dr. M. Dockrell: The Ringed Eruptions of the Skin.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Oct. 28th.—Lecture:—Mr. J. W. Smith: Inflammation of the Appendix in the Pelvis or less Usual Positions.

Notes, Short Comments, and Answers to Correspondents.

THE OFFICER IN CHARGE OF A MEDICAL DIVISION.

BY ADOLPHE ABRAHAMS, M.D., M.R.C.P.,
MAJOR, R.A.M.C.; OFFICER I/C. MEDICAL DIVISION, THE CONNAUGHT HOSPITAL, ALDERSHOT; ASSISTANT CONSULTING PHYSICIAN TO THE ALDERSHOT COMMAND.

PART II.

A Question of Responsibility.

IN civilian life the services of a specialist are called upon for the consideration of some obscure condition upon which the general practitioner has expended some time and thought and yet is in a state of uncertainty. There is no doubt that a similar principle should guide the medical officer in charge of a battalion or other unit, but owing to certain regulations he is encouraged, and occasionally compelled, to hurl at the specialist a variety of cases which connote the very A B C of medicine. His responsibility begins and ends with providing an ambulance for the removal of a case to hospital. It is sufficient that he transfers it, and no responsibility attaches to him as to its suitability or unsuitability for hospital treatment. It is an unfortunate corollary of this rule that if through an error of judgment he has unlawfully detained a patient in quarters, he may be mercilessly criticised for acting outside his jurisdiction. There is no premium on hits, there is an overwhelming discount upon misses, and an officer who erred in a single case would derive no credit for a thousand previous accurate diagnoses. Where, then, mistakes are penalised and successes not approbated, it is small wonder that he is soon persuaded to repudiate any sense of responsibility, and hastily to select some outstanding symptom and send the patient straight off to the so-called specialist in the hospital.

And so one sees cases of albuminuria sent to the renal specialist, when a few minutes' examination would have detected a gonorrhœal discharge, or even merely prostatic secretion. Has the man a pain in the back he goes to the nerve specialist, and does he complain that he feels nervous or trembles he must consult the neurotic specialist (sic). Any reference to the chest brings him up to the chest specialist, who is therefore patronised by a remarkable potpourri, including indigestion, aneurysm, chronic bronchitis, muscular rheumatism, arterio-sclerosis, pleurisy, intercostal neuralgia, tabes, and a host of other things. But occasionally the chest pain is localised to the præcordial region, and so the heart specialist must be consulted. This gentleman is usually prepared to encounter almost any condition other than a disease of the heart. You will readily understand, therefore, how an enormous preponderance of what, pathologically considered, is rubbish reaches the "medical specialist," and yet the delight of the game is that he must be ever on the *qui vive* lest he overlook some serious abnormality. In one evening I remember seeing a case of œsophageal carcinoma labelled "This man is always complaining," a case of gastric crises who presented himself as "gastritis," and one of Addison's disease as "abdominal pain."

But the enormous majority of cases sent up fall under three heads. "Is this man ill at all?" "What category is he fit for?" And, "Is his disability due to military service?"

The Advantages of Sickness in the Army.

According to the "yellow" press, a doctor who cannot tell when a man is ill is only fit to be hanged. As a matter of fact, in many cases nothing is more difficult, and a great part of one's day in a military hospital is spent in struggling perpetually to prove a negative. In civil life, of course, the average man neither goes sick unnecessarily nor does he tend to exaggerate his disability. Save in those comparatively rare instances when, owing to insurance mismanagement, a man is better off sick than at work, illness means at least considerable discomfort and possibly serious hardship. But in the Army sickness means not only no disadvantage but positive advantages, and, hard as it may sound, every man who presents himself without obvious and unmistakable evidence of illness must be regarded as a potential humbug. But, as a matter of fact, the genuine malingerer is rare. Our clientèle is largely supplied by the type of man who in civilian life was never able to maintain any sustained interest or exertion, who says that he is "not used to being 'urried." To this type routine is abhorrent. The idea of being compelled to rise at a fixed hour and perform duties unremittingly at regular times is sufficient to drive him to go sick. In the second place, we meet the type which appeals more to our sympathy, the middle-aged conscript who does not easily assimilate an entirely strange environment. Such men, who are aged about 45, look about 65, and behave as if they were 85, have a curious propensity to develop an asthenia, but baffle every attempt at investigation to discover any kind of lesion. One is driven to call these cases "debility," a term rightly deprecated for its indefinite nature. Then there are men sent to the hospital by medical officers who mistake misery for illness. Of all ages and classes, these men are only affected with home-sickness or the results of brooding upon their change of station and the shipwreck of their future. It is manifest that medicine can do nothing for these; generally the medical specialist is obliged to return a report that this man's symptoms will persist so long as he is in the army. Last of all is the man who is merely war-weary, and whose symptoms appear to be the accompaniment of some grave disorder. Very often I have seen phenomenal improvement, with a gain in weight of perhaps 20 lb., arise simply from the rest which a few weeks in hospital confer.

The question of accurately categorising a man needs very little discussion. It is a tempting compliment to the medical man to provide him with a variable number of classes into which he is supposed to drop any man whose capabilities he is required to grade; but nobody can possibly measure what in a large number of instances is the vital factor, the man's willingness to perform duties. The question of what diseases are due to or aggravated by military service is another and a more interesting subject. The broad principle laid down seems childishly simple: Can you say with confidence that the man would not have acquired this disease if he had remained a civilian? In practice you cannot, for our knowledge of pathology is too inexact to define dogmatically what influence may or may not be added by the circumstances of military service. I know one eminent physician who holds that, for social reasons, venereal disease can be regarded as due to military service.

Complaints against Hospitals.

Another feature which I cannot entirely neglect is the matter of complaints directed against a hospital. I have never quite understood why, but there exists in a certain section of the population a rooted mistrust of hospitals in general, and they are regarded as institutions where experiments are practised upon the unfortunate inmates entirely for the doctors' benefit. In war time and when the hospital is a military one a charge is still more easy to elaborate. For example, the bewildering difference of opinion expressed by doctors will never be comprehended by the layman. A man will protest that it is courting death for him to engage in the ordinary activity of an A 1 man, and will produce certificates from doctors who have interpreted some slight peculiarity in the sounds of the heart to indicate serious heart disease. In the hospital cardiologist's view this peculiarity no more affects the working of the heart than the squeak of a spring in a motor-car affects the efficiency of the engine. Yet the patient who prefers to believe himself a C 3 man will fight, and demand board after board, and even get his case taken up by an M.P., and finally brought before the military House of Lords, before he will take his proper place in the ranks.

Furthermore, the patient having lost his case abandons legitimate weapons, and out of sheer spite proceeds to elaborate wholly fictitious charges. You would not believe me were I to describe the preposterous complaints which have occurred in my own experience, and which have to be met and denied categorically, item by item, with such proof as one can produce against a monstrous exaggeration or a deliberate lie. I am not, of course, suggesting that complaints need not be investigated. It is best for an institution that the efficiency of its working should be subject to supervision. But it ought to be possible to penalise the slanderer if his charge is found to be wholly unwarranted or based upon unverified evidence. At present there is nothing to prevent anybody from throwing stones or flinging mud and enjoying complete immunity from retaliation when the grossness of his action is thoroughly demonstrated.

Professional Relationship.

Finally, I would like to deal with the subject of professional relationship as it exists in the army. A middle-aged and highly successful general practitioner finds himself in charge of patients for whom he naturally regards himself as entirely responsible. It is with difficulty that he can learn to realise that in practically no respect is he left an absolutely free hand, but that his judgment and opinion must be subjected to the criticism of his superior officer, who may be many years his junior. This diagnosis must first of all stand the test of reference to official nomenclature, quite apart from its pathological correctness or incorrectness. The patient's dietary is strictly regulated by A. C. I., and the M.O. must be prepared to defend the urgent necessity of any extras if, as not infrequently happens, his hospital is called upon to sustain the charge of extravagance. Again, prescription of his favourite remedies may be rudely

refused if their departure from orthodox hospital mixtures is not considered to be justified. Even the disposal of his patient is no longer in his hands. Any tendency to advise prolonged stay in hospital must be checked owing to the demands which frequently arise for beds for urgent expeditionary cases. All such restrictions will come most heavily upon the older men, partly because of a natural resentment towards interference of any kind, and partly because, with the best of intentions on their part, long acquaintance with civilian patients unfits them for regarding the sick in a military hospital from an entirely different standpoint.

Now, in all these circumstances the divisional officer is the *Deus ex machina*, and he is ever coming to grief in his attempt to steer a middle course between the Scylla of professional discourtesy and the Charybdis of incapacity to realise military exigencies. His failure to produce a large number of empty beds will call forth the wrath of his seniors. On the other hand, his purely impersonal action in exercising an official control may be misconstrued as the interference of a conceited young Jack-in-office.

But he has his compensations; his position is a fine training ground, not only to learn his profession, but for the good of his soul, the education of his sense of proportion, and development of that breadth of mind which results from a realisation that there is method in other people's madness.

THE BATHS OF BATH.

THE Board of Education has approved the scheme of spray baths and mineral water treatment, in suitable cases, for children in the Bath elementary schools for one year.

COLONIAL HEALTH REPORTS.

A REPORT on the Gold Coast Blue-book for 1917, signed by Mr. W. H. S. Truell, Acting Assistant Colonial Secretary, has recently been issued. It states, inter alia, that the population of the Gold Coast and its dependencies amounted at the last Census to 1,503,386. The number of Europeans resident in the colony during 1917 was 2172. Of these, 27 died and 114 were invalided, the death-rate being 12·43 and the invaliding rate 52·49 per 1000. Of 9 deaths which occurred amongst European officials in the colony and its dependencies, 3 were due to yellow fever, 2 to blackwater fever, 1 to malarial fever and pneumonia, 1 to chronic malaria, and 2 to other diseases. Six deaths from blackwater fever occurred amongst Europeans and non-officials. The average daily number of European officials on the sick list compared to the average daily number resident in the colony was 2·55 per cent., as against 1·66 per cent. in 1916 and 1·10 per cent. in 1915. On the whole the sick returns for 1917, amongst natives as well as among Europeans, indicate that the year was an exceptionally bad one. No means exist whereby accurate statistics relating to the health of natives can be obtained.

Plague and Other Diseases.

Treatment was given in 3507 cases of malaria, 519 cases of dysentery, 236 cases of pneumonia, 261 cases of tuberculosis, and in a large number of cases of minor complaints. In all, 52,150 cases of disease were treated during the year, of which 241 proved fatal; the figures for 1916 were 48,155 and 282 respectively. In March, 1917, an outbreak of pneumonic plague occurred in the Accra district. Six cases came under the observation of the medical authorities, all of which proved fatal; it is estimated that in all there were at least 39 deaths. As was the case with regard to the outbreak of plague in 1908, it was not found possible to trace the origin of the outbreak of 1917, nor to prove that it had been introduced from without. Outbreaks of small-pox were reported from Ashanti and the Northern Territories. 358 cases came under observation, and there were 62 deaths. 15,619 successful vaccinations were performed, as compared with 7848 in 1916. Thirteen cases of sleeping sickness were treated during the year, whereof six terminated fatally.

Rainfall and Climate.

The rainfall of 1917 was even heavier than that of 1916, which was considerably in excess of the average; this necessarily acted as a stimulus to the breeding of mosquitoes, although vigorous combative measures were, as usual, taken at all the principal stations. The climate, though hot and damp, is cooler than that of most tropical countries situated in the same latitudes. It is not in itself unhealthy; but an evil reputation has been earned for it in the past by the prevalence of mosquito-borne diseases, against which all possible precautions have constantly to be taken. The Gold Coast is peculiarly free from many of the discomforts associated with tropical countries; hot nights and intense heat by day are the exception rather than the rule, while insects are comparatively unobtrusive. The rainfall varies with the physical configuration of the country, and is highest at Axim and in the mining districts of Tarquah, Upper and Lower Wassaw, &c. The first rains, or rainy season proper, begin in March and end in July; the later rains are spread over the months of September and October. The rainy season is marked by a considerable fall in the temperature, which is found to be refreshing to many Europeans, but proves trying to some. The Harmattan season begins in December and ends in February.

The efforts of the sanitary and medical authorities in promoting hygiene and treatment of disease continue to exercise a beneficial effect on the general health of Europeans.

THE DECIMAL ASSOCIATION.

IN connexion with the Decimal Association's agitation for counting coins in tens, it is interesting to note that, including Egypt, already ten British colonies have adopted decimal currency—Canada, Newfoundland, British Honduras (dollar), Ceylon, Mauritius, East Africa (rupee-cent), British North Borneo, Straits Settlements (S.S. dollar of 2*s.* 4*d.*), Hong-Kong (Mexican dollar), and Egypt (£E—millieme). Egypt is interesting, for the Egyptian £ very closely approximates to our sovereign, and is divided into 1000 milliemes, while Lord Southwark's Bill proposes to substitute 1000 mils. for our present 960 farthings. The experience of Egypt should be valuable in deciding this question now so much before the public.

SCIENCE IN A NEW REPUBLIC.

WITHOUT wishing to enter rashly into the thorny paths of politics, we would suggest to any of our readers who may have revolutionary proclivities the study of a paragraph from a German newspaper, of which we append a translation. The paragraph, which is headed "A Valuation of Intellectual Work," is as follows:—

The assistant surgeons of the Vienna hospitals have submitted a petition asking that their salaries may be made equal to those of the charwomen. The request has been refused on the ground that the work of the charwomen is so monotonous and wearing (eintönig und aufreibend) that they have a claim for higher remuneration than the assistant staff, whose duties are varied and interesting (abwechstungsreich und anregend).

This appears to indicate an opinion as to the value of science on the part of the democracy in Austria which must render the lot of the medical staff of a State or municipal hospital unenviable.

CONVERTING OUNCES INTO GRAMMES.

To the Editor of THE LANCET.

SIR,—This is the age of mnemonics and of entente with France and the spread of the metric system. Therefore more avoirdupois ounces will be converted to grammes. A mnemonic for this purpose is, "It converts one ounce." Counting the number of letters in each word gives 2-8-3-5, recalling 28·35, the conversion factor and number of grammes to an ounce avoirdupois. To those who want a mnemonic to remember the mnemonic it is given in "I coo" or "Gramercy, I coo," recalling the initial letters of the mnemonic itself. I do not know of any collection of mnemonics for the metric system, but it might be useful.

I am, Sir, yours faithfully,

Oct. 22nd, 1919. F.

Communications, Letters, &c., to the Editor have been received from—

A.—Capt. Attwater, R.A.M.C.; Messrs. Arnold and Sons, Lond.

B.—Mrs. H. E. Burnside, Lond.; Dr. J. C. Boyd, Dunoon; Dr. J. Brown, Lond.; Dr. R. Burges, Hartley Wintney; Mr. C. Brown, Lond.; Board of Education, Lond; Brayton Galleries, Lond., Sec. of; Borstal Association, Lond; Dr. G. S. Buchanan, C.B., Lond.

C.—Mrs. K. D. Crafton, Lond.; Dr. E. L. Collis, Cardiff; Mr. H. Collinson, C.M.G., D.S.O., Leeds; Conjoint Board of Scientific Societies, Lond.; Dr. A. Compton, Lond.; Mr. D. Cotes-Preedy, Gerrard's Cross; Dr. J. S. Crawford, Ben Rhydding.

D.—Mr. R. Davies-Colley, C.M.G., Lond.; Dr. E. Duncan, Glasgow.

E.—Mr. D. L. Eadie, Edinburgh; *The Egyptian Gazette*, Alexandria, Editor of.

F.—Mr. E. H. Fenwick, C.B.E., Lond.; Factories, Chief Inspector of, Lond.; Capt. H. Fraser, R.A.M.C.; Dr. R. F. Fox, Enham; Food Education Society, Lond., Hon. Sec. of; Mr. H. Francis, Lond.

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L.—Mr. S. S. Lipovsky, Lond.

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N.—Sir G. Newman, K.C.B., Lond.

P.—Surg.-Lieut.-Commdr. R. J. G. Parnell, R.N.; Dr. E. Playfair, Lond.; Mr. H. J. Paterson, Lond.

R.—Mr. H. M. Rainsford, Lond; Royal College of Physicians of Ireland, Dublin, Registrar of; Dr. Regnault, Toulon; Dr. W. C. Rivers, Worsboro' Dale; Royal Medical Benevolent Fund, Lond., Sec. of; Dr. J. D. Rolleston, Lond.; Royal Society of Medicine, Lond.

S.—Sir G. H. Savage, Lond.; Mr. A. W. Sheen, Lond; Scottish Board of Health, Edinburgh.

T.—Mrs. M. Taylor, Lond.; Dr. F. E. Tylecote, Manchester; Dr. A. H. Thompson, Lond.; Dr. J. Tatham, Oxted.

U.—University of Durham, Faculty of Medicine; University of London, Academic Registrar of.

W.—Dr. F. P. Wigfield, Lond.; Dr. J. D. Wynne, Norwich; Dr. A. M. Wilson, Cape Town; Dr. H. Williamson, Lond.; Mrs. T. R. Ward, Slough.